RILKE LABS

Innovation beyond waste

Rilke Labs, d. o. o., Kraška ulica 2, 6210 Sežana, www.rilkelabs.com

2.5 billion tons of waste per year globally

33 %
dumped

44 %
landfilled

11 %
burned

13 %
recycled

Problem | **Missing information breaks the circle.**

Solution | **Assign "waste" its real value.**

Transparent PET bottles
173 € / tonne

Aluminum cans
812 € / tonne

News, paper magazines
97 € / tonne

Glass
17 € / tonne

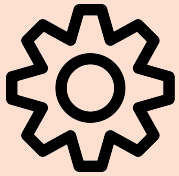
Battery -> Fire Equipment damage
- 400.000 €

General trends | **Capturing the real material value**

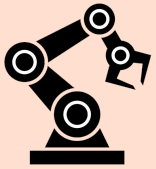
Industry 4.0 is making its way into material recovery sector.

Material Recovery Technology Providers

Turn-key solutions



Sorting equipment



Sorting robots

- Smart sorting facilities with **advanced process control**
- Higher sorting efficiency by using **advanced detection methods**
- **Automating** manual sorting labour

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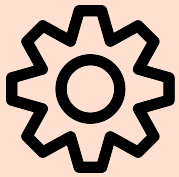

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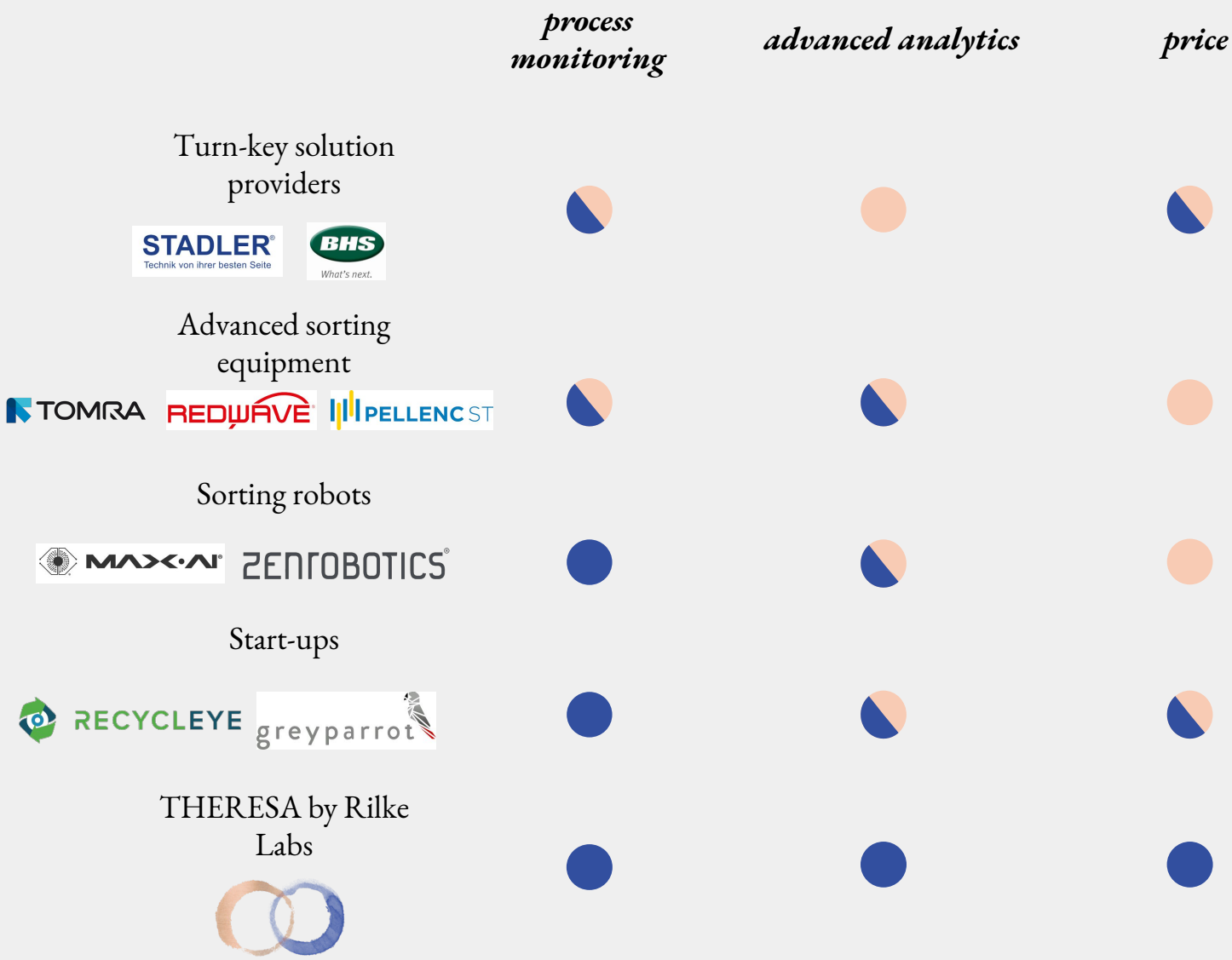
Emerging AI-supported technologies

Connected systems

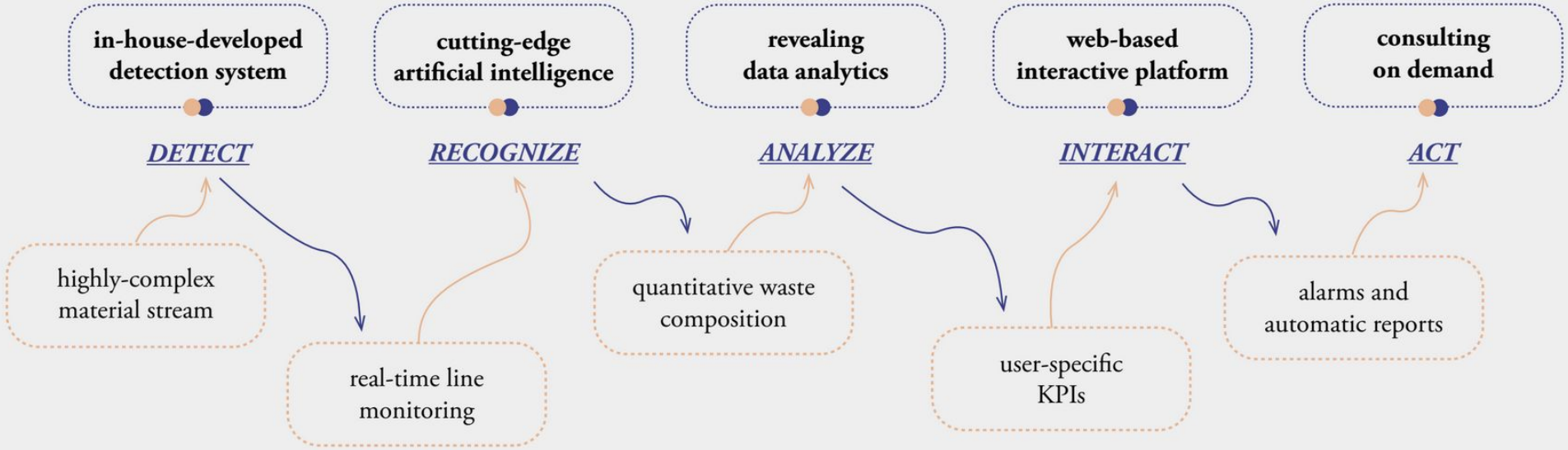
Low-cost

Advanced analytics

Competition and UVP | **The race for the best data has begun**



Tech demonstration | **From quantitative data to insight**



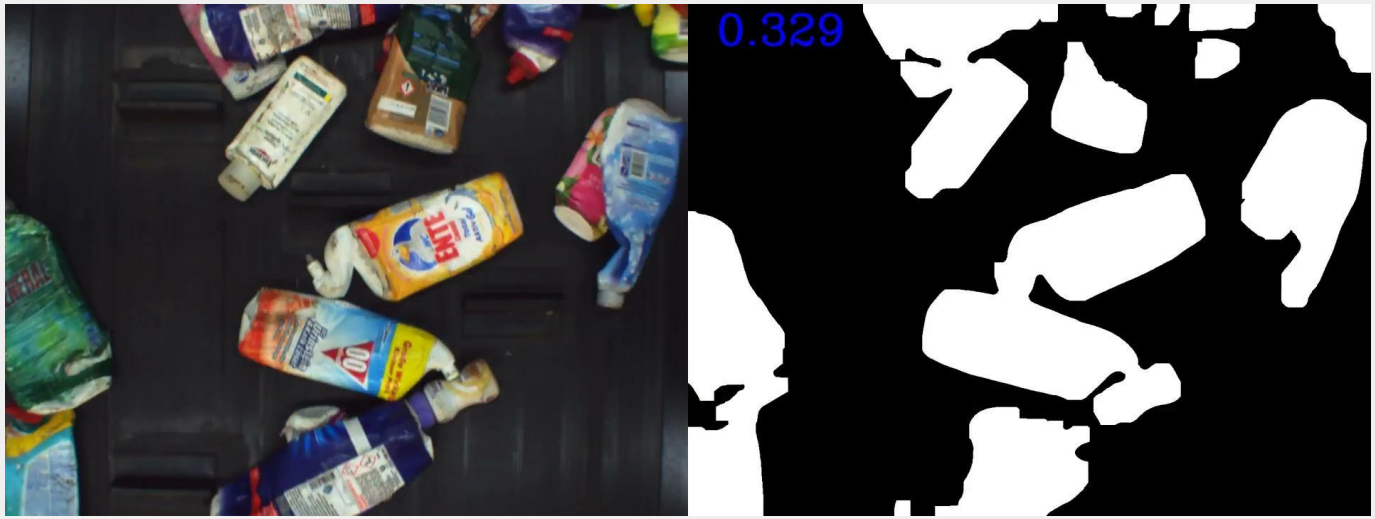
Tech demonstration | **Monitoring device**

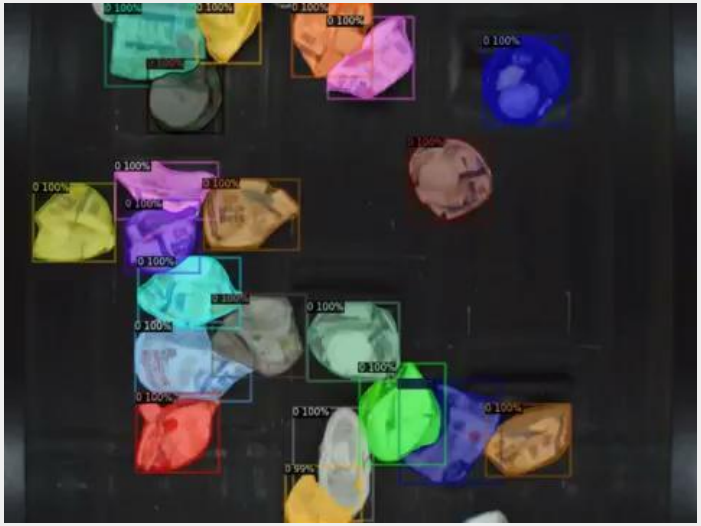
Acquisition device

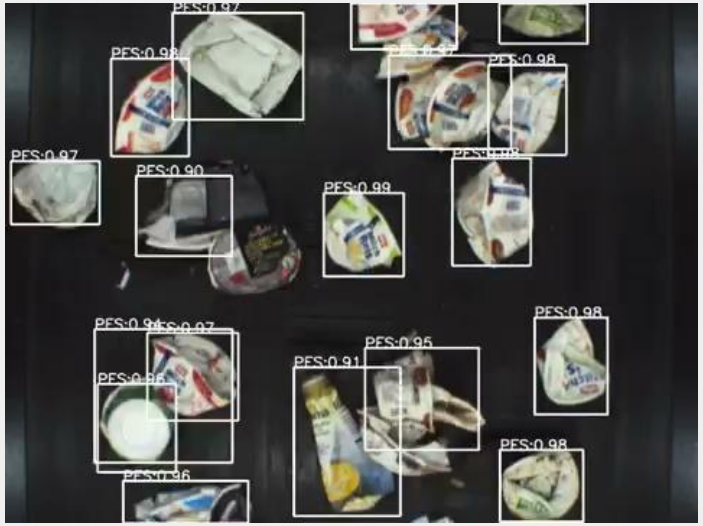
Tech demonstration | **AI (1)**

Cans and plastic bottles

Tech demonstration | **AI (2)**

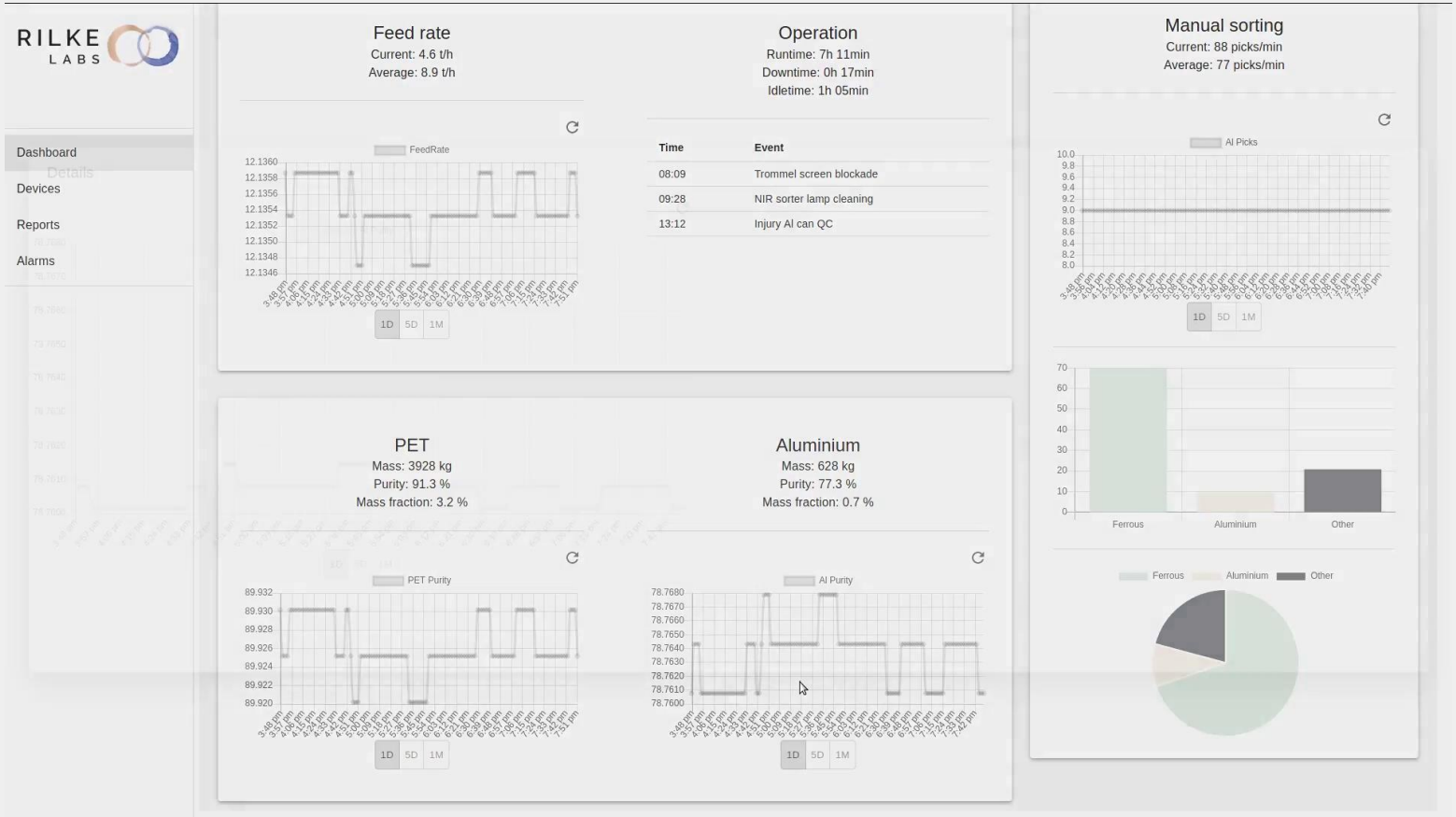






Shapes and coverage

Tech demonstration | **User interface**



Interactive web user interface

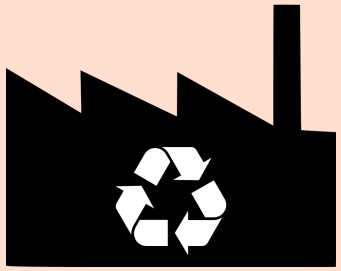
Process performance indicators

- From **efficiency**
  - Downtime
  - Throughput
  - Capture efficiency of recyclable fractions
- over **quality**
  - Moisture of secondary fuels (RDF/SRF)
  - Purity of sorted fractions (e. g. PET)
- **control**
  - Detection of dangerous and non-desirable objects
  - Detection of self-ignition
- and **advanced analysis - connecting the dots**
  - Belt correlation analysis
  - Plant commissioning phase - meeting the requirement?
  - Return of investment assessment
  - Brand recognition
  - Input material analysis (supplier screening)
- up to ***new ideas***

Our services | **Circular support model**

Direct and indirect enabling of circular economy through providing support services and activities for **circular value networks**.

(Material Recovery Facilities)



Process circularisation

1. Material flow analysis
2. Optimisation proposal
3. Implementation
4. Consulting on-demand

Fixed fee +
Optimization profit sharing

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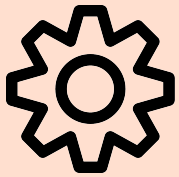
Turn-key solutions



Sorting equipment

Sorting robots

Complete innovation services

1. Problem assessment
2. Prototyping
3. Implementation
4. Technology transfer

Licensing or IP transfer

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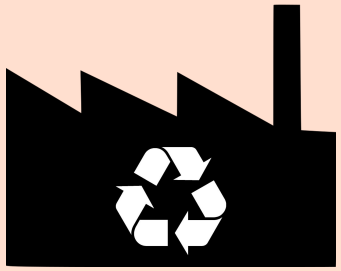

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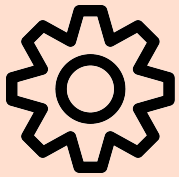

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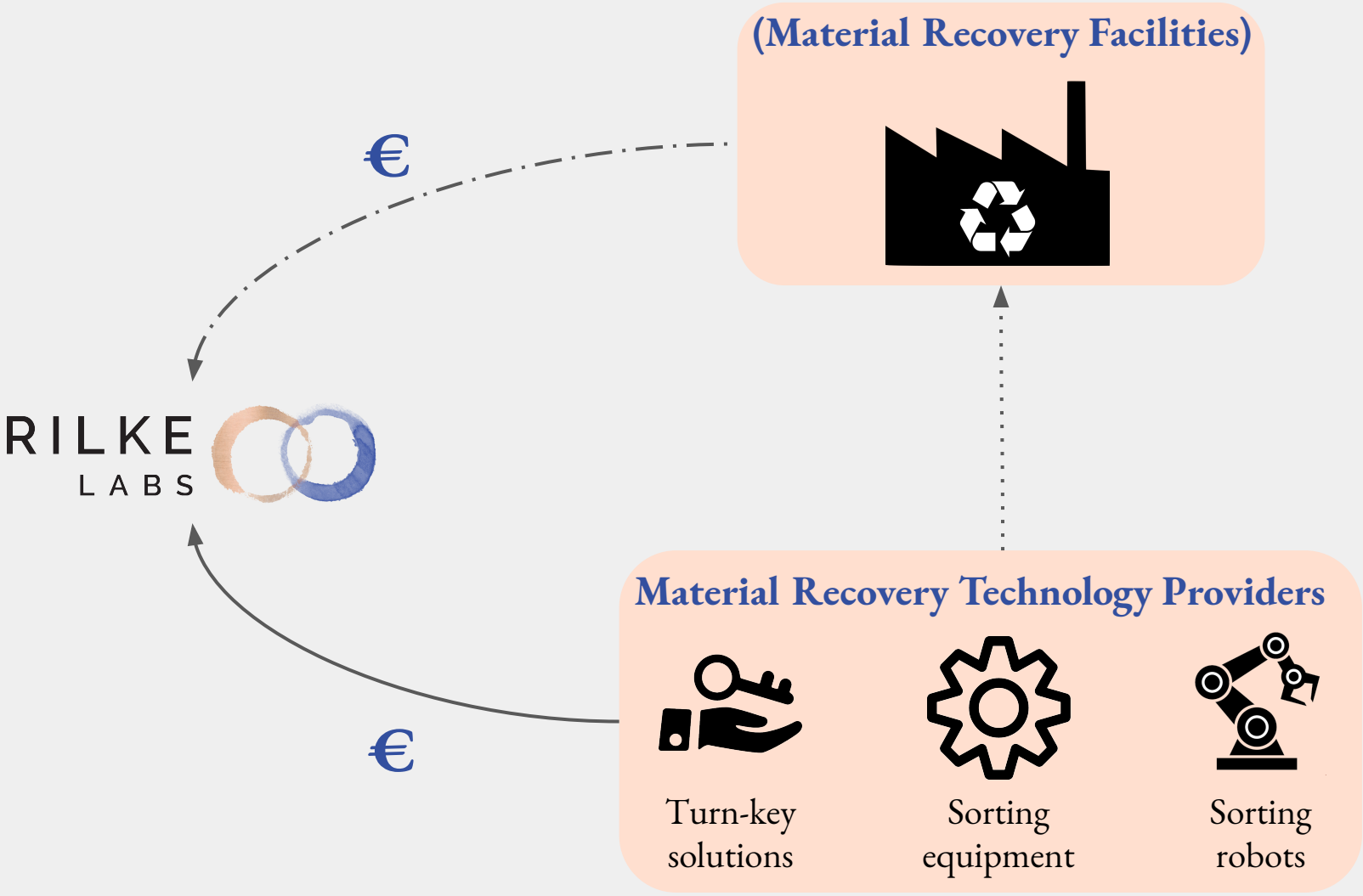
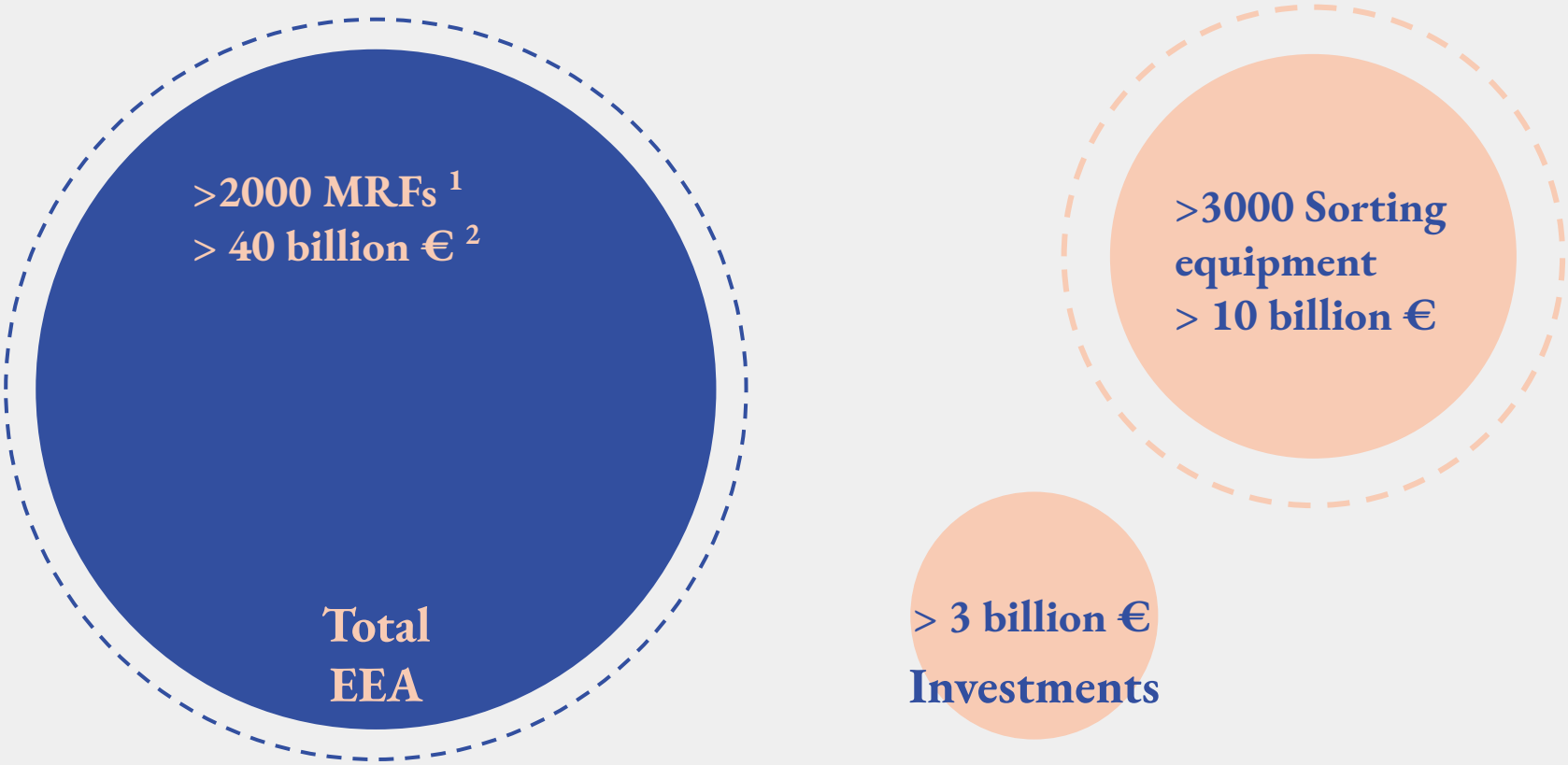
Ongoing customers and activity

Our clients | **Revenue through services and licensing**



Growing market | No burning. No exporting. More recovery.

Environmental **regulations** and **ambitions** to achieve **circular economy** are driving the **investments** into material recovery infrastructure.



[1] The European Market for PlasticSorting and Recycling, Ecoprog report 2015
[2] https://www.destatis.de/DE/Presse/Pressemitteilungen/2019/12/PD19_499_432.html
[3] T. Pretz, "Techno-economic assessment of central sorting at material recovery facilities:the case of lightweight packaging waste," https://core.ac.uk/reader/50709990.

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Operations

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Nico Carl, *PhD*

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IT professional for large scale projects

Georgios Kourousias, *PhD*

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IT, AI and data consulting to major companies

Aljoša Hafner, *PhD*

CEO

Data analytics for private sector and material analysis in academia

München

Trieste

Sežana

inkubator sežana

The Challenge | **Service diversification and definition**

How to transition from being a **technology** provider **to being a service provider?**

Whole value chains

?

Process circularisation

1. Target market segment
2. Early-adopter identification

Revenue model

RILKE LABS

Emerging AI-supported technologies

Providing insight into material streams

Extracting value from material streams

Increasing revenue of stakeholders

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Let's innovate together

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