

virtualmech⁺

We will ride railways into the future

→ One system for each track

Who are we?

Technology developers



Company founded in 2009
In Sevilla, Spain



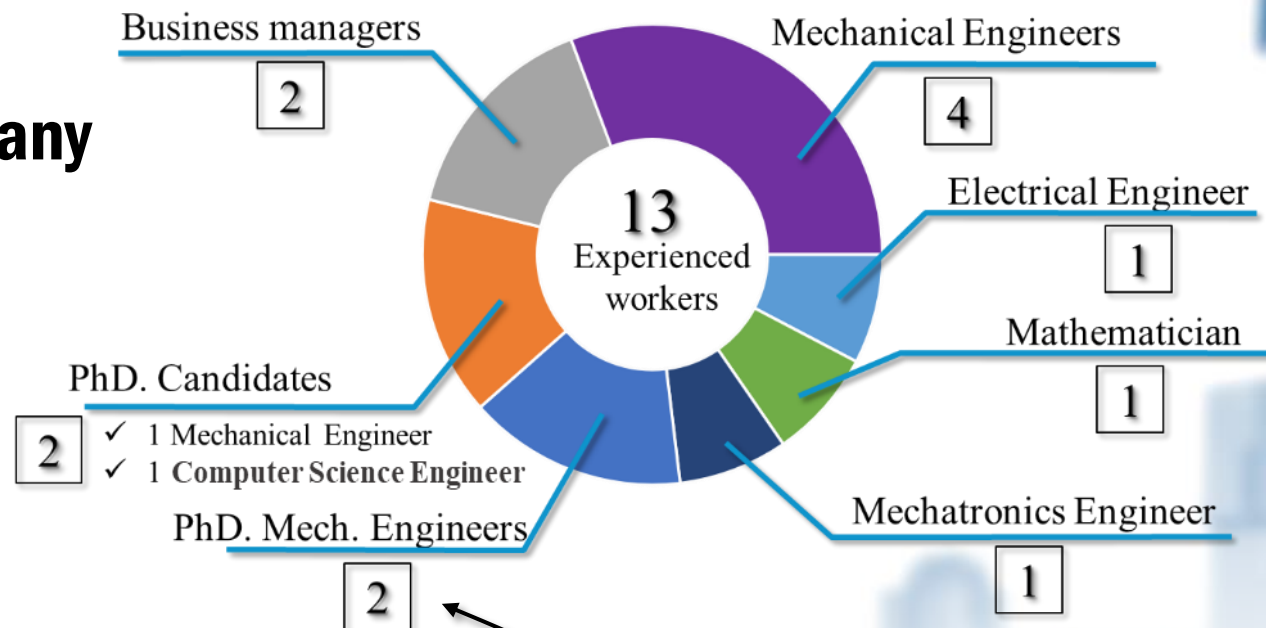
Knowledge as core of the company



Highly specialized team



We develop industrial projects

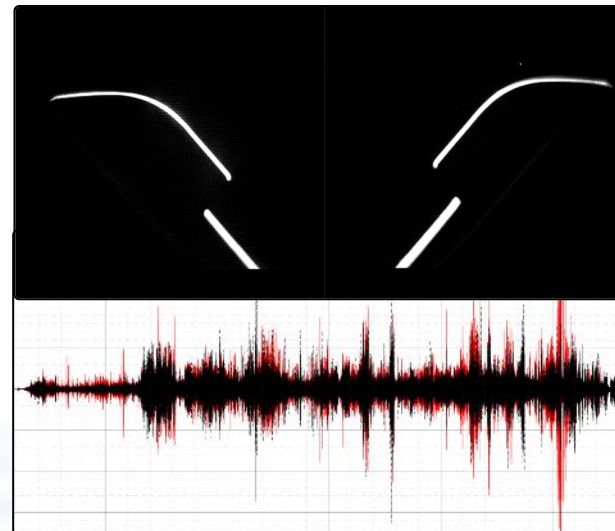
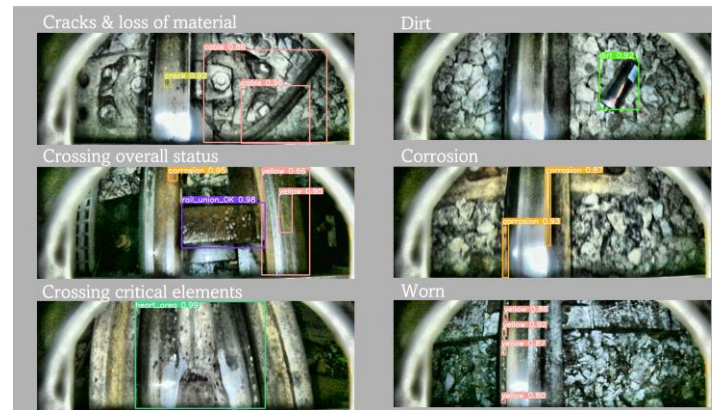


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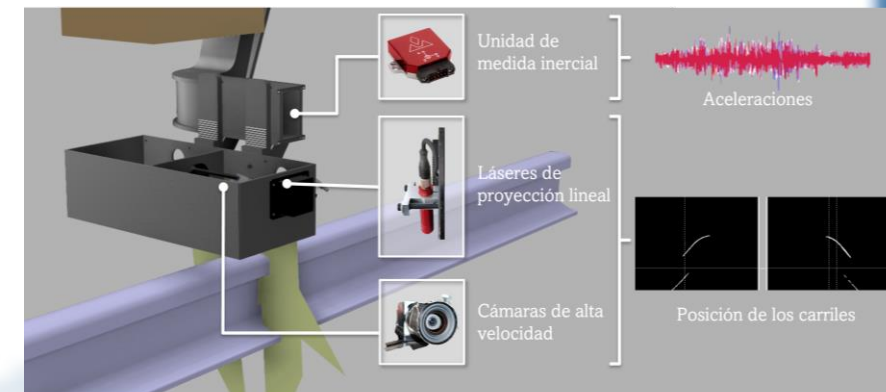
What do we do?

We bring data to decision-makers

Thermosolar & Energy Sector

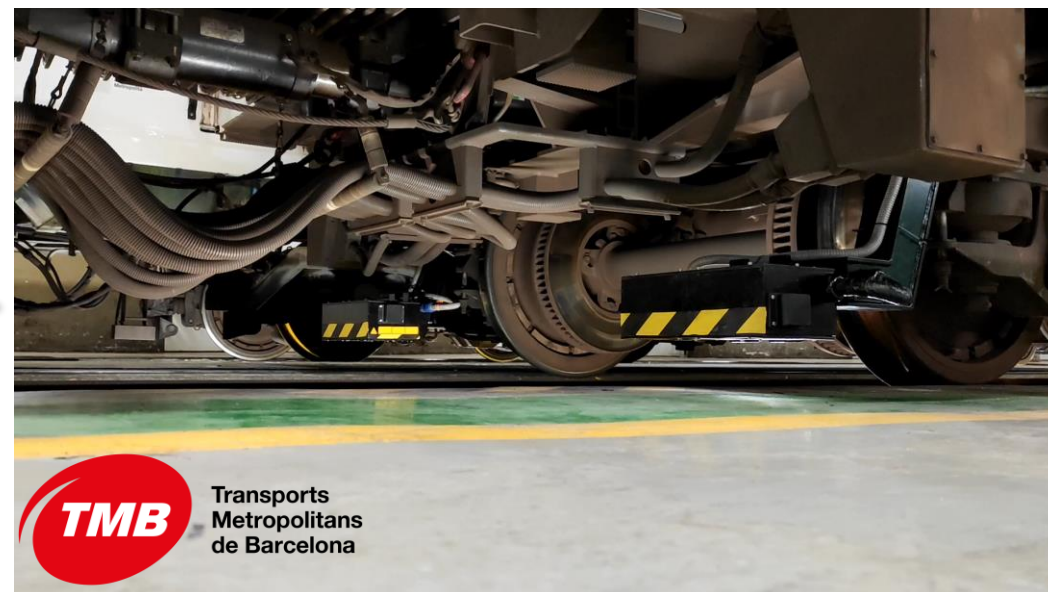
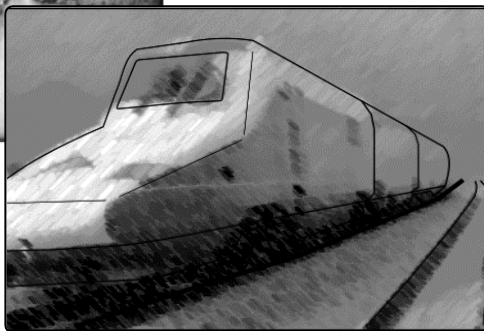


Railway Sector



Problem → Solution

No data to make proper decisions → Create + process + digest + present data



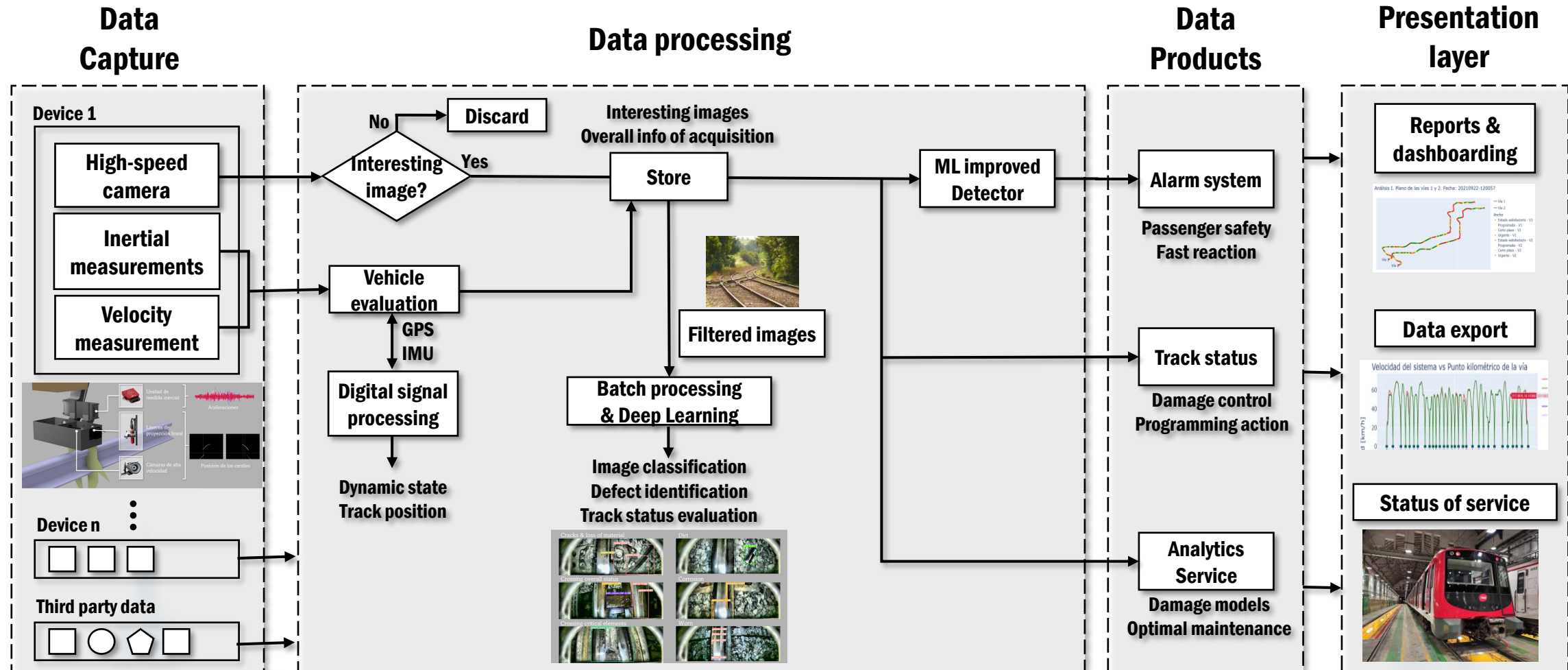
Track infrastructure monitoring is extremely costly, therefore infrequent.

- Workers walking along the track
 - Expensive lab vehicles
 - Slow invasive trolleys

✓ Onboard Track Measurement Systems

**Installed, validated & working
in Metro de Barcelona**

Technical assessment



Results

Helping operators/maintainers to know their tracks



1. Identifying critical defects that may impact on the safety of the ride

Rail breakage

Insufficient support

Anomalous elements on track

2. Detect and classify defects based on operator/maintainer criteria

Crack evaluation

Excessive corrosion

Growing defects

3. Study the evolution of track parameters to prevent excessive deterioration

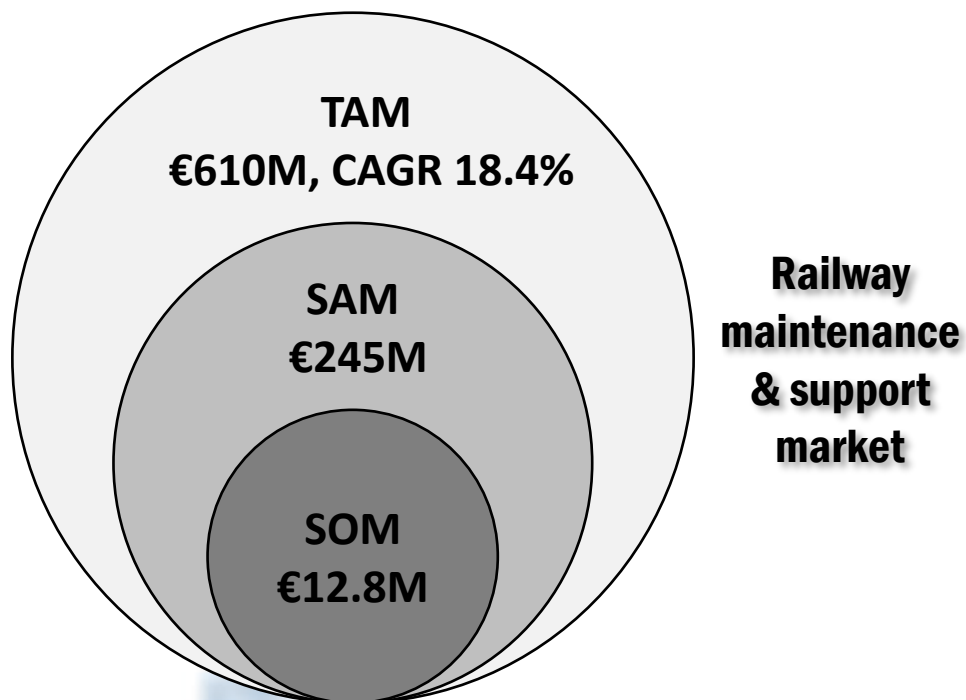
Analyse crack growth on the go

Preventive work orders

Optimal planning of maintenance actions

Market Opportunity & Risks

- ✓ **Cost reduction in maintenance.**
- ✓ **Increase in safety goal of all stakeholders.**
- ✓ **Optimize operative based on maintenance.**



- **TAM: Total Addressable Market (TAM) per year**
- **Serviceable Addressable Market (SAM) → Market in Europe**
- **Service Obtainable Market (SOM) → 5 % of the market**

Technical Risks

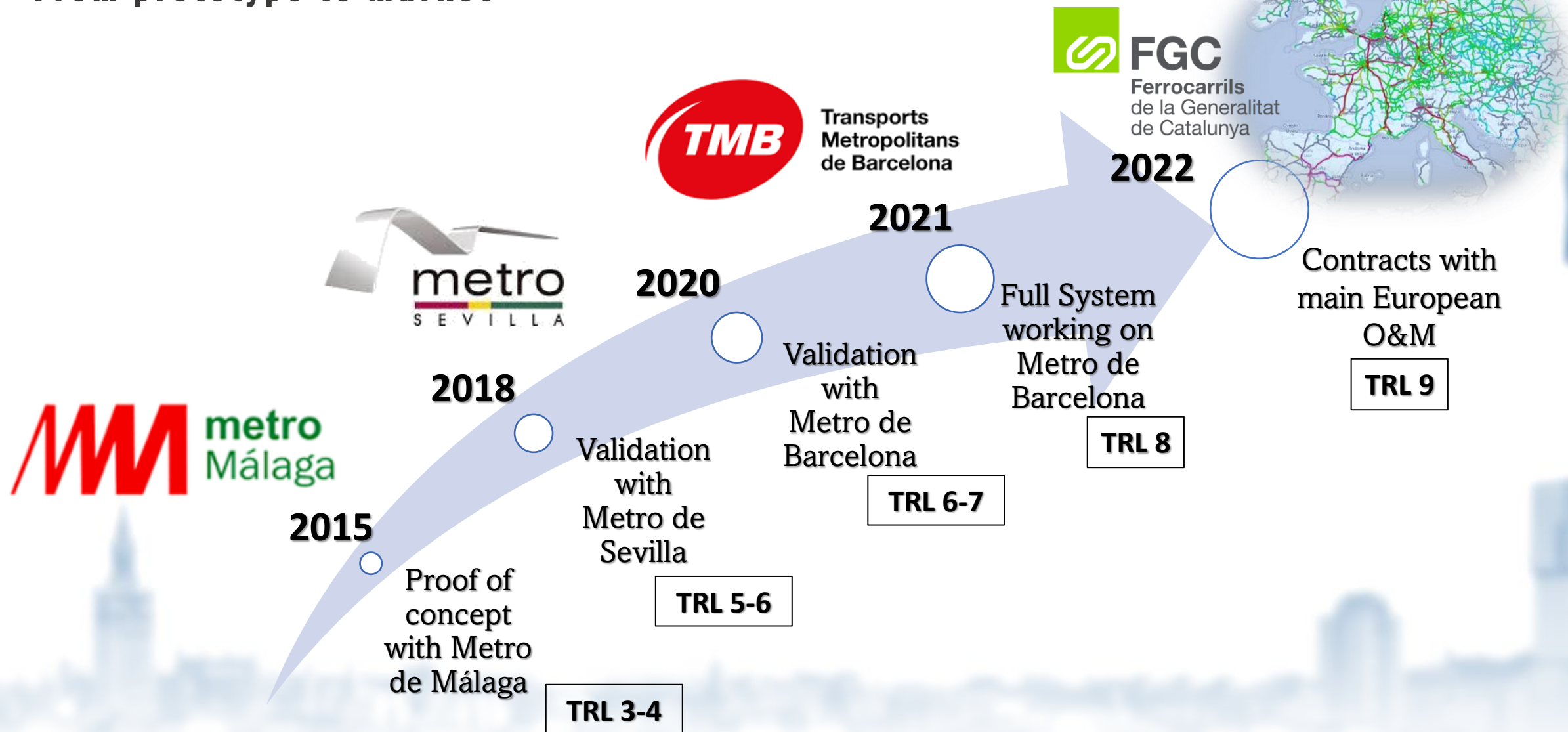
- **The characteristics of each infrastructure are different**
→ **We create flexible algorithms**
- **Improve the methodology to adapt to any train forward velocity**
→ **Different level of pic classification**
- **Certifications per countries and other Regulatory risks**
→ **Always develop based on standards**

Business Risks

- **Unknown among potential customers outside Spain**
→ **EU projects and partners networking**
- **Commercial distribution channels not created or saturated**
→ **Offer better ways of knowing us (pilot projects)**
- **Big rival companies may develop similar solutions**
→ **Keep improving technology, training the team and deploy faster**
- **Sales do not meet expectations**
→ **Cash flow contingency plans & growing investment on marketing**

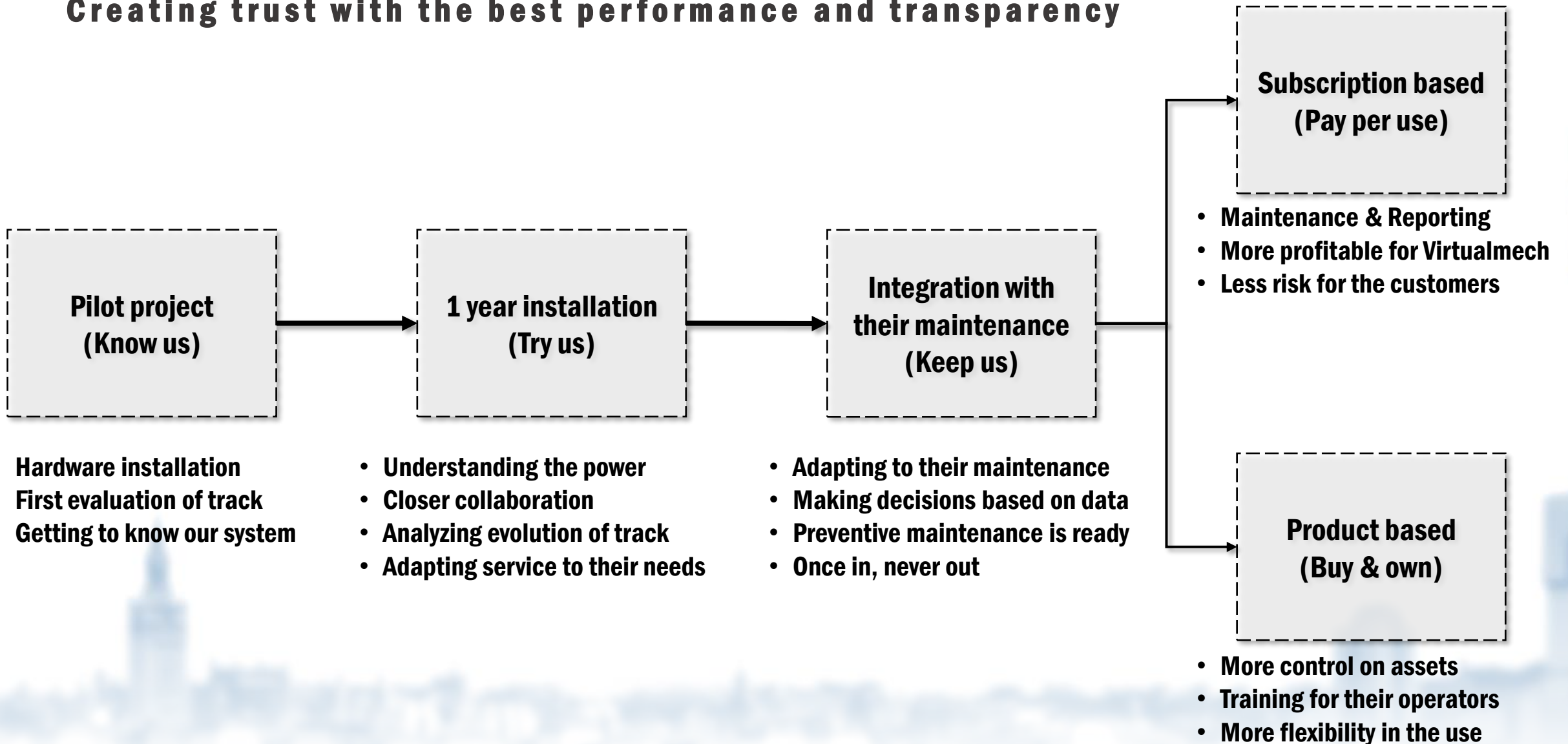
Feeling the momentum

From prototype to market



Business Model

Creating trust with the best performance and transparency



Leading Team



**Pedro Fdez-Palacios,
CEO & Founder**

**Extensive experience in
industrial machinery
financing and developing**



**Juan Valverde,
CTO & Founder**

**Product leader well-
versed in mechanical
maintenance industry**



**Juan Carlos Herruzo,
Production Manager**

**Keeping the machinery
well-oiled, updated and
running**



**Miguel Ángel Pérez,
Data Engineer**

**Designing, deployment and
improving the ecosystem
for deep learning**



**Eduardo Briaes,
Product manager**

**Bottom-up
understanding of the
product and its market**