

WORMSENSING

Game changing vibration sensors up to the challenges

Jean-Sebastien MOULET, CEO



WORMSENSING

**Unlock the access to vibration data
in any situation, at large scale and with high precision**

by

Designing, Fabricating and Marketing
revolutionary vibration sensors and vibration sensing solution

2020

Creation

20

Employees

8

Nationalities

3.5 M€

Equity, fall 2022

worms



Born and Based in a science park

Grenoble

Founders

J.S Moulet CEO

L. Benaissa CTO

Investors

INNOVACOM



cea | investissement



Dragonfly®

Passive



8 references sold since Jan.24

Dragonfly® S



Dragonfly® L



IEPE

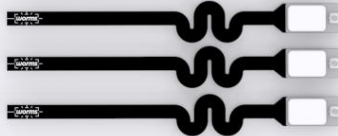


Dragonfly® IEPE S



Gain 1
Gain 10
Gain 100

Dragonfly® IEPE L



Gain 1
Gain 10
Gain 100

“ We see thing that we could not see before and will have to learn again how assets behave, a **revolution.**”



Franck HARS
Principal vibration expert

“ A **revolutionary sensor** to monitor all mechanical machines with moving parts”

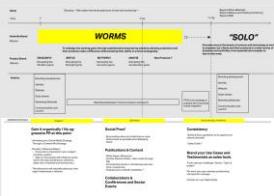


Yasutoshi OKUNO
VP Technology Strategy
& Corporate officer

The Brand Strategy

WORMS IS THE STORY OF BEAUTIFUL SCIENCE

Beautiful Science, Powerful Products, Profound Impact.



BRAND ATTRIBUTES

**STRONG, POWERFUL
RELIABLE
WITH SOUL
PURE, CLEAN
FLUID
AUTHENTIC
DISTINCT
SCALABLE, EVOLUTIONARY**

STONE OF VOICE

**CLEAR
FACTUAL
INSPIRING**

Timeless
Focusing on Fundamentals
Elegant, Impeccable



STRONG AND DEFENSIBLE IP

38+ patents

Distributed over **13** patent families

Application 9

Publication 14

Granted 15

Key R&D partners



leti

EPFL



Holst Centre
Powered by imec & TNO

PRODUCTION LINE UP & RUNNING

2M units/y

convertible into ~**200M€** turnover/y

Sustainable process

Dry process – No toxic waste

Minimized energy consumption

Ultra low material consumption

A structured company with commercial traction

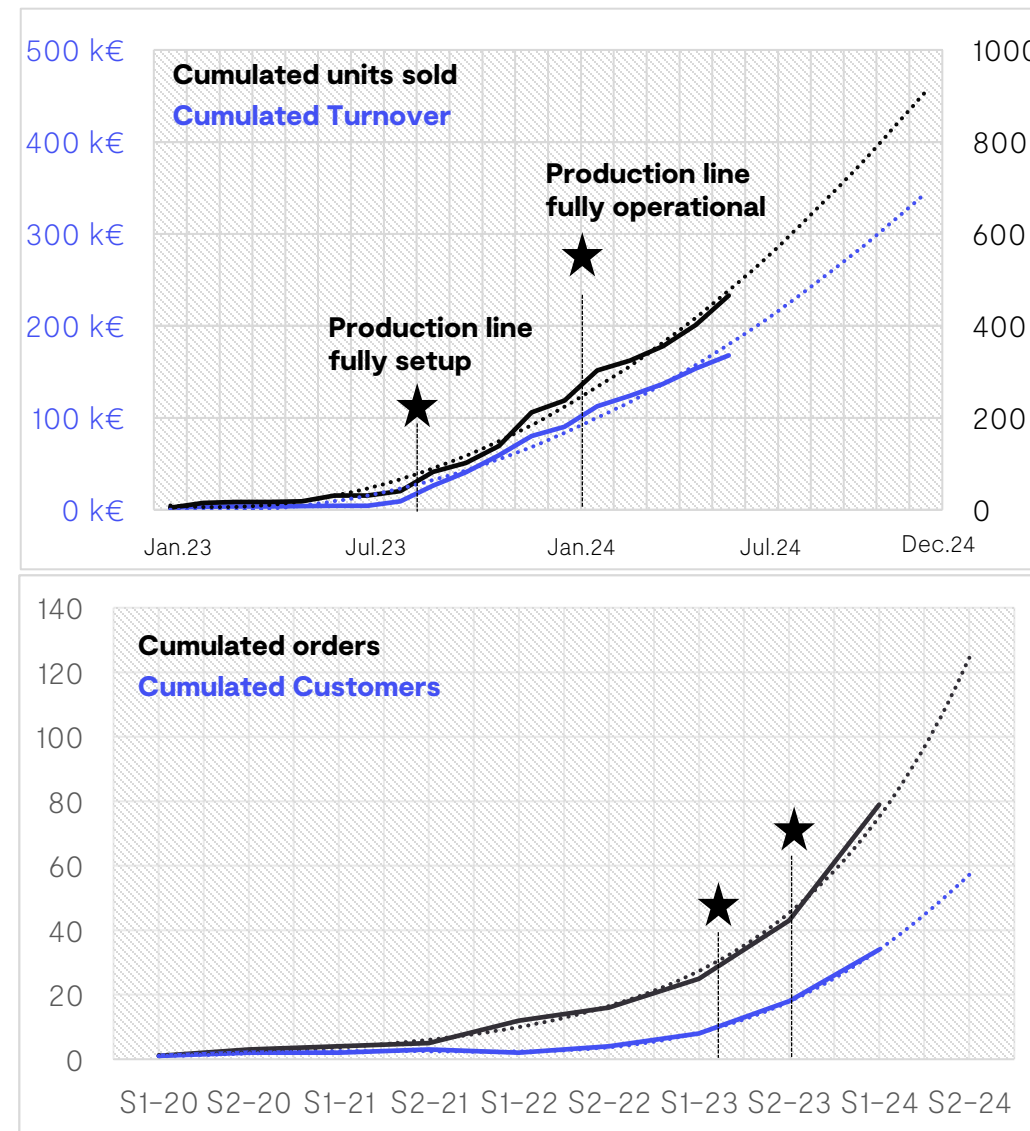
Company **structured to grow**
(ERP & MSE deployed, ISO in progress)

2M sensors/y **in house** production line
capacity with 90% yield

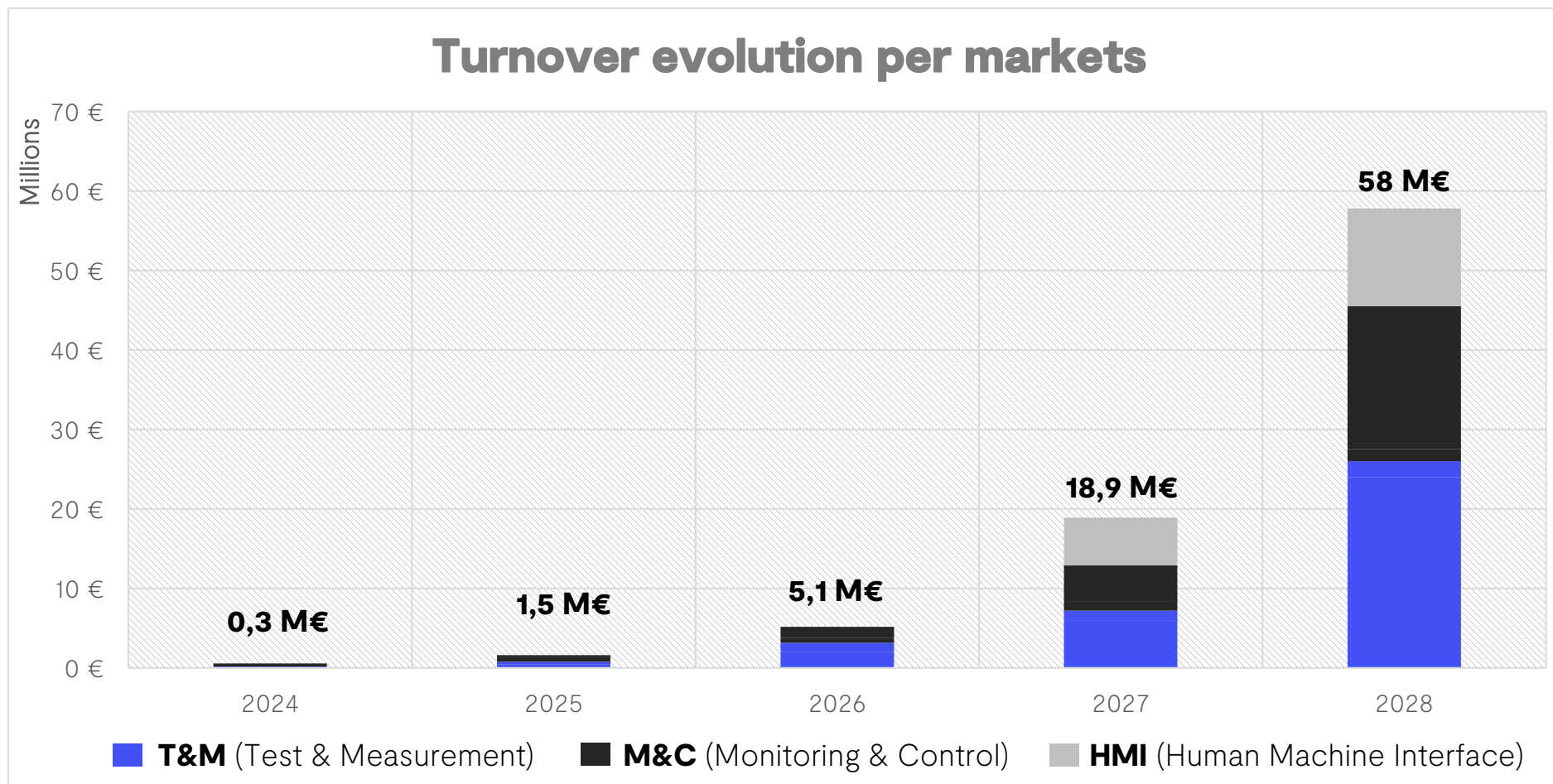
+35% turnover m/m over 1 year

50% international sales

38 patents over 13 families
(+16 patents, +8 families in 2023)



Ready for next step: commercial growth



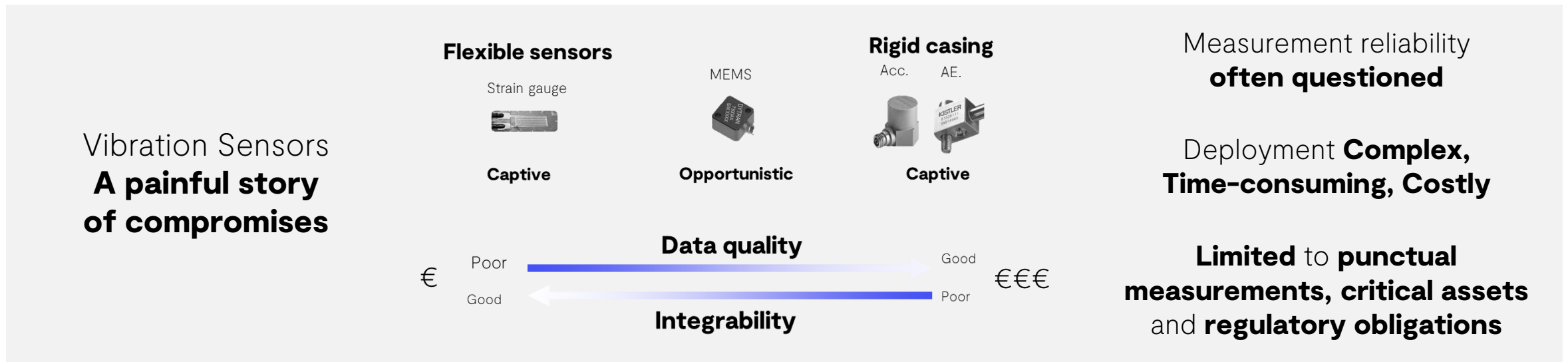
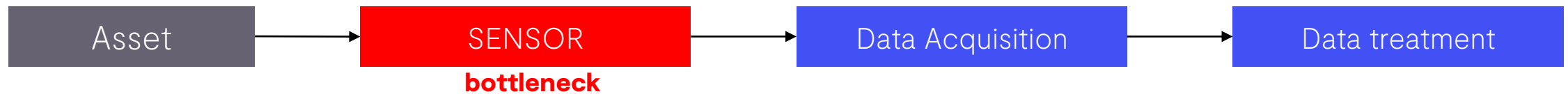
Year	2 024	2 025	2 026	2 027	2 028
Revenue	318 000	1 585 000	5 170 000	18 960 000	58 040 000
EBITDA	(835 686)	(1 071 763)	202 362	9 464 738	38 866 916
Net income	(1 109 740)	(1 921 041)	(847 086)	5 452 102	24 899 118

Problem

Vibration is a **universal physical** phenomenon just like Temperature or Pressure. It is interesting to measure it pretty much everywhere

Vibration enable access in a nondestructive way to a wealth of information of the inner state of a system, from far away the best value for the quality of information obtained

Today **vibration data quality is long acknowledged** but **access** to the data **stays difficult**



Pain points

Vibration sensors made vibration measurements **completely under exploited over the last 60 years**. In a global context of crisis and resilience, this situation is **not sustainable anymore**, and vibration data is becoming the **most valuable information sought to monitor, control and anticipate** assets/systems behaviors

True for all industries



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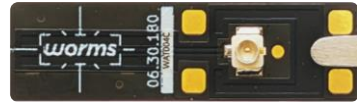
Our Solution

Dragonfly[®]

Real-time high-quality vibration measurements,
everywhere it is wanted to measure



World's thinnest piezoceramic sensors



Unmatched precision & reliability
Tailored for **large scale** deployment



Sensitivity
(x1000)



Plug & Play
(15 min setup)



zero power
(Passive sensor)



- ✓ **Performances beyond state of the art**
- ✓ **Easy to install**
- ✓ **Affordable & large-scale deployment**
- ✓ **ESG compliant**

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Impact

Dragonfly®

Increased performance & efficiency

Time & money gain on all the line:

- Sensor
- Installation
- Post data treatment
- Qualified labor
- Asset availability

Large scale deployment

Unlock Monitoring and control to all stakeholders

- OEMs
- Manufacturers
- Operators
- Park manager

Asset Life cycle



With Dragonfly®

Reduced development time

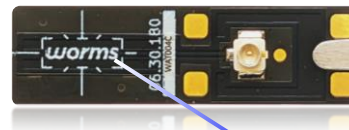
In process & in manufacturing tool management

Decrease of maintenance costs

Real time monitoring & management

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Unique Technology



MATERIAL SCIENCE

Highly quality & ultrathin piezo crystal films



cea

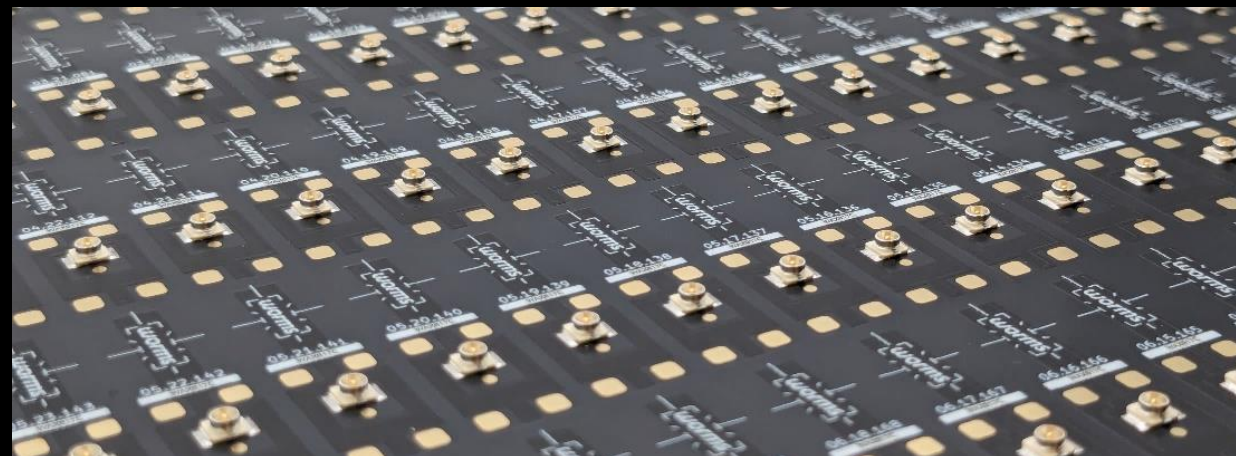
leti

40 years of research background

We **invented the technology** and are the only one in the world capable of using it

FLEXIBLE HYBRID ELECTRONICS

Highly scalable, reliable & sustainable process



Semiconductor & Printing tech mix



Addressable Market & Business model

> **4B€** SAM

T&M
Test & Measurement

SAM
Volume

5M
units/y

Willingness
To Pay

200-800 €
/unit



Vibration analysis, NVH
Monitoring, SHM, CBM
Event Detection

Access new information
LIMIT the cost of developments
or surveillance

M&C
Monitoring & Control

50M
units/y

30-80 €
/unit



Dynamic Weighing
Monitoring, SHM, CBM
Quality & Process Control

Gain mastery &
control on your
assets

HMI
Human Machine Interface

> **300M**
units/y

<2 €
/unit



Automotive/consumer

Creating new businesses
opportunities

Business model:

Design, manufacture
and sell sensor &
sensing solutions
Or Licensing (HMI)

We also sell services
that support the
product adoption:
prototypes,
electronic design,
data treatment,
vibration analysis,

3 market verticals

Test & Measurement

Market size >1B€
Recurrent start 2023

Industries:

all industries



Applications:

Product development, norms & regulations, failure analysis, event detection

Customer typology:

Vibration experts

Needs

Performance, robustness, easiness of installation

Products

Dragonfly® off the shelf
Standard catalog products



Prices & Sales

200-800€ /unit, from 1 to 1k units

Business model

Fabrication & Sales of sensors on catalog
Service: customer support

Privileged Sales channels

Through distributors & service providers or direct sales

Control & Monitoring

Market size >2,5B€
Recurrent start 2025

Industries:

all industries



Applications:

Predictive maintenance, Structural health monitoring, quality control, force sensing, dynamic weighing, active control

Customer typology:

OEMs, Manufacturers, Operators, Park managers

Needs

Large scale deployment, Integrability, Performance

Products

Dragonfly® OEM
custom design for each customer



Prices

30-80€ /unit, from 1k unit to 1M units

Business model

Fabrication & Sales of specifically designed sensors
Service: support on electronics & algorithms

Privileged Sales channels

Direct sales or through service providers

HMI

Market size >1B€
Recurrent start 2028

Industries:

Automotive, consumer electronics



Applications:

Make any surface touch sensitive, Human machine interface, tactile interface

Customer typology:

OEMs

Needs

Large scale deployment, Integrability, Performance

Products

Solo™
SMD component integrating the piezo layer



Prices

<2€ /unit, from 100k unit to 300M units

Business model

Fabrication & Sales or technology licensing
Service: Design (sensor/electronics) & algorithms

Privileged Sales channels

Direct sales or through service providers

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T&M market strategy

M&C, HMI strategy on demand

2023	2024	2025	2026	2027	2028
0,2k units sold 16 customers 30k€ rev.	1k units sold 60 customers	3,5k units sold 180 customers	16k units sold 800 customers	50k units sold 2,5k customers	200k units sold 10k customers 24M€ rev.

Shifting from end-users to distributors & service providers

End-users



They bring **credibility and notoriety** to enter the different community and application fields, they are **prescribers for the distributors**. At large volume they buy through distributors. Objective is to develop them “enough” to get maximum traction on distributors and getting whitepaper data to showcase Dragonfly® performances to others.

In parallel

- For better visibility & notoriety
 - Subscribe** and be part of **specialist communities**
 - Participate** to specialist **conferences & fairs**
2023: 11 events, 5 booth, 1 paper
1 shared booth (Toyo)
2024: 16 events, 11 booth, 2 talks,
3 papers from customers
+ 4 events through Toyo
- Publish white papers**, 7 so far

Distributors & service providers

They bring **massive access to customers** (largest have >40k customers portfolio) and a **fast worldwide deployment**. Two types of distributors accessible: **sensor manufacturers** (worldwide coverage) and **specialized distributors** (by country). **Service providers** brings **credibility & new applications openings**. Objective is **having a maximum of deals** as overlap of their business is small

Status July 24	Radar	Internal benchmarks	1 customer deployments	Distribution contract
Sensor manufacturers	 50k customers 4M Strain Gauge/y More into the future with reliable measurements	 35k customers 4M Strain Gauge/y MISURE MECCANICHE Italy France 	 60k+ customers 800k accelero/y 100k+ customers 400k accelero/y	 1st signed
Specialized distributors				
Service providers			 	

Our team



Jean-Sébastien, PhD
CEO, founder



Lamine
CTO, founder



Thibaud
Business



Angélique
Backoffice



Jérémy
Finance



Jacky
Product



Guillaume, PhD
Ind. Operation



Emil, PhD
R&D



Board members



Frederic
Partner
Innovacom



Nuno
Invest. Dir.
KBC focus fund



François
General Partner
Supernova, CEA



Christophe
Strat office Dir.
SOITEC



Jerome
CEO
ARaymond, Fr

Use of funds

6M€ equity + Non dilutive

to fuel the company and keep the momentum
become profitable & strengthen our foundations

2024-2026

Target Objectives

5 distribution

contracts

4M€ total value

5 OEM series

2M€ total value

1 RFQ signed

1M€ total value

Marketing & sales

- Create and manage international distribution network
- Forge strategic alliances with service providers
- Increase visibility and notoriety
- Develop 3 strategic markets for M&C

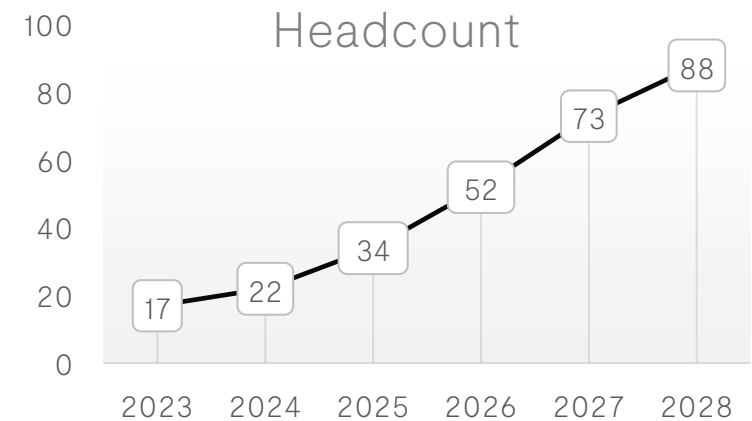
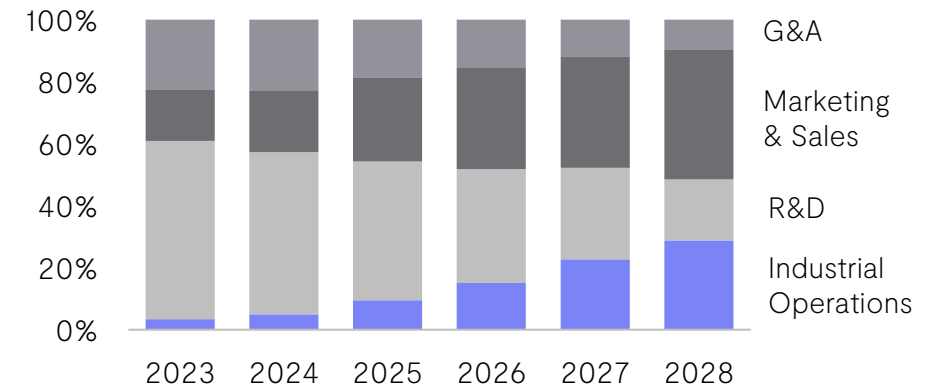
Product development

- Product adjustment to comply with different industrial standards
- Solo™ SMD to develop

- +15 new patents to make licensing a valid option & strategy

- 1 new product to develop to magnify by 2-3 our business surface T&M and M&C (not taken into account in above metrics)

OPEX EVOLUTION PER BUSINESS UNIT (%AGE)



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Crushing state of the art sensors in **critical structure design**


Highlighting previously **invisible** design issues ...




For 30 years




Strain gage



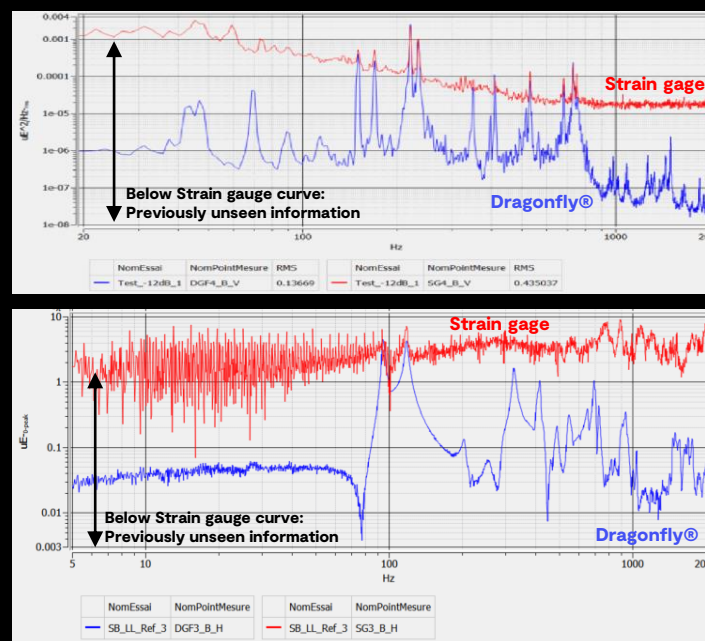
Accelerometer



Today



Dragonfly®






Increased confidence in measurement – Launch validation here
Setup time divided by 10 – Accelerating design phase



SOM **750 k€**/year
Volume **2500** sensor/year

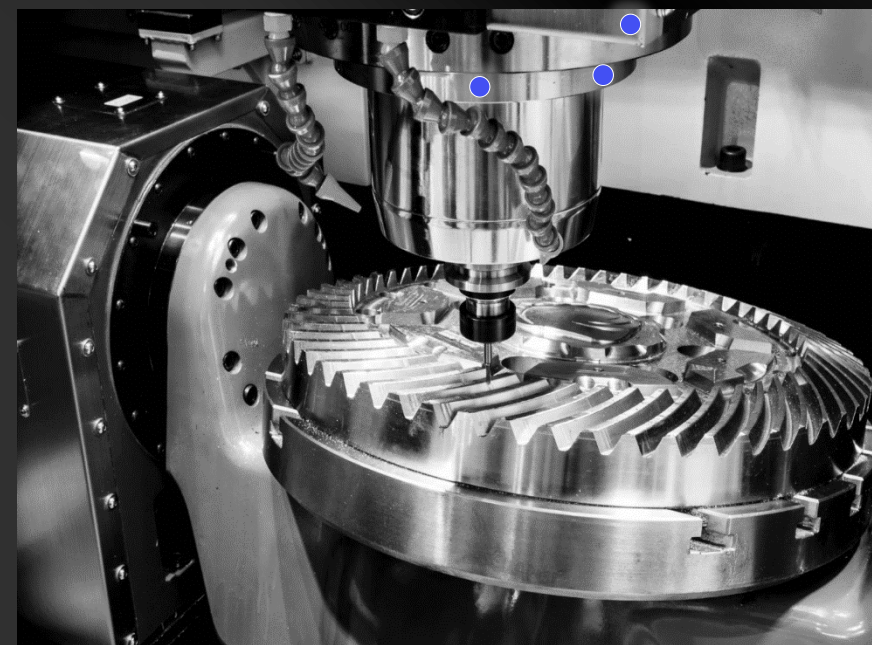
Outperforming current sensors in **predictive maintenance**

Highlighting previously **invisible** process issues ...

MEMS	3X Accelerometer	Dragonfly®
		
No Data	HF Data	LF + HF Data
No Analytics	14 KPIs	14 + 5 critical KPIs
No action	Limited action	Increased productivity

lifespan increased by a **factor x3** on machine parts (spindle)
~ **200 k€** savings /tool/year – precision machining

CNC Machining

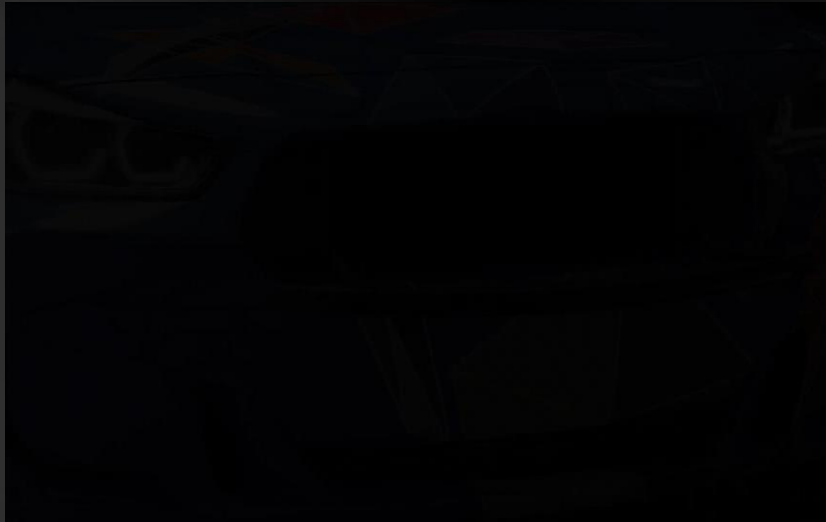
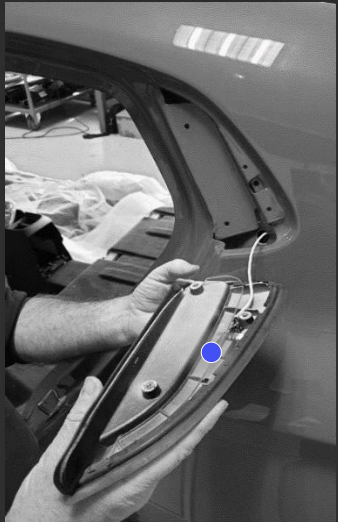


SAM
Volume **350 M€**/year
 2,4 M sensor/year

Opening the game in **Human Machine Interfaces (HMI)**

Designing **robust and novel** human machine interfaces

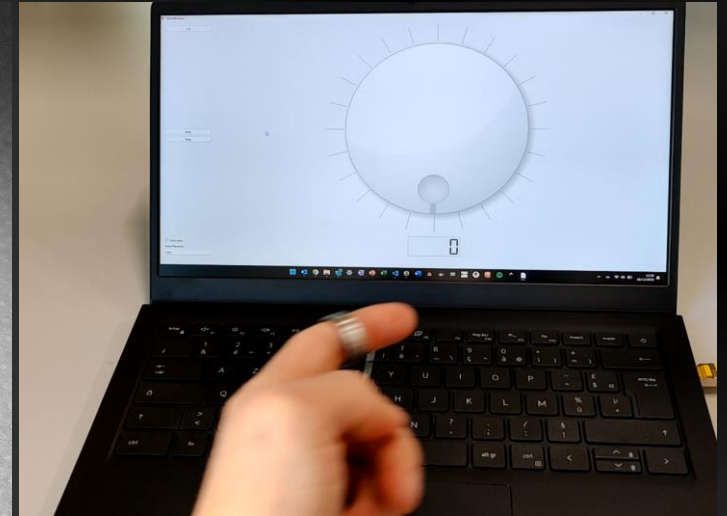
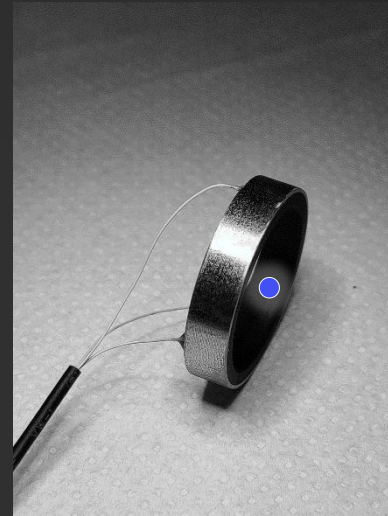
Customer **vilesc**
TECHNOLOGIES



Demo Video
Automotive

Customer

Redacted



Demo Video
Consumer