EnerHarv 2024
PSMA International Workshop | 26-28 June, 2024 | Perugia, Italy

WISEPOWER

PANEL SESSION: FUTURE DIRECTIONS & WRAP-UP

From R&D to Industrial Design
Paving the Way to Self-Powered IoT Commercial Adoption

Presented By –

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OVERVIEW

- **WISEPOWER**
- **EH R&D overview**
- **Filling the GAP**
- **Conclusions**

WISEPOWER overview

ENERGY HARVESTING

R&D activities on micro generators

- Design of environmental energy harvesters.
- Full support from scratches to product integration.

MONITORING SOLUTIONS

Development and production of multi-sensors devices

- Devices are designed to monitor structures processes and environment.
- Sensors are developed to use harvested energy to enable a full wireless architecture.

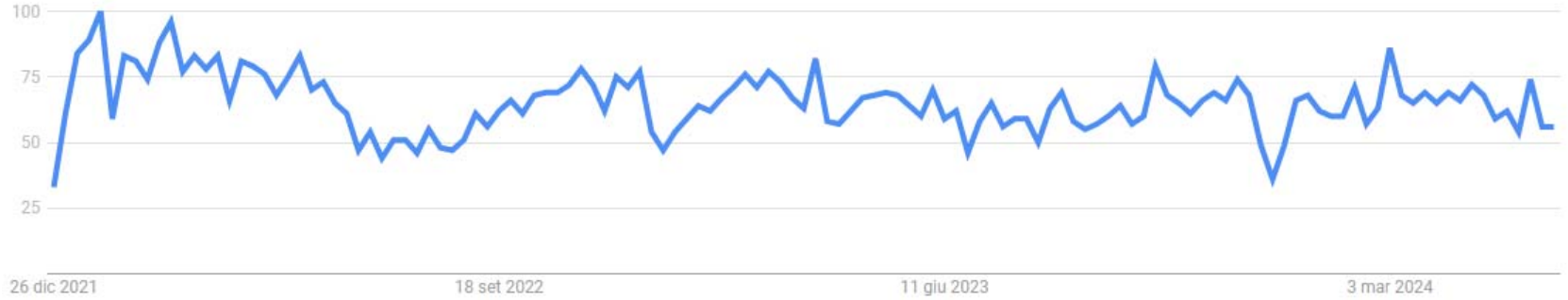
EH R&D overview

magic of Google data

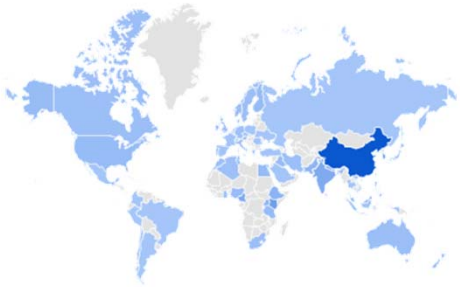
Google Trends

EH R&D overview

1st order simplification using KPIs (PUBLICATIONS on uEH)

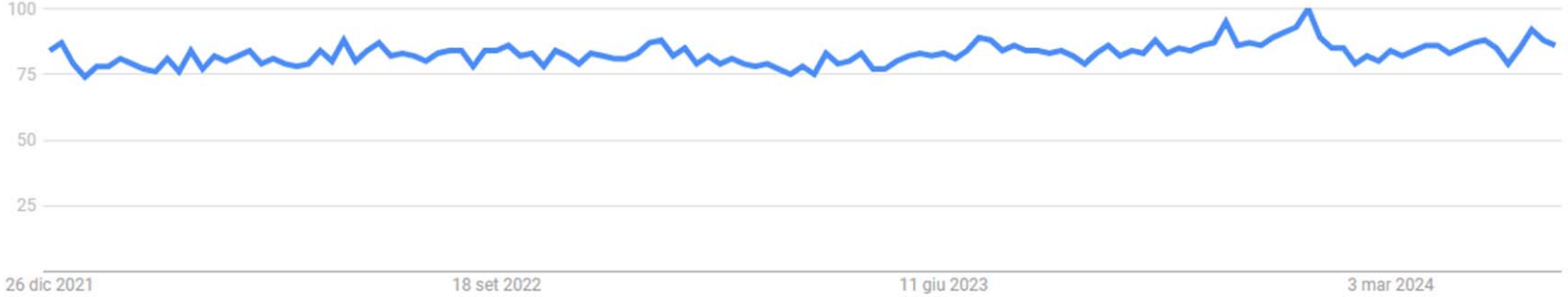


Google Trends



EH R&D overview

1st order simplification using KPIs (PUBLICATIONS on Batt.)



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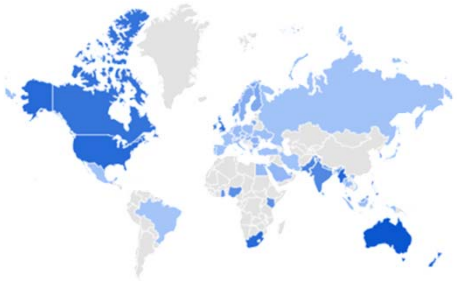
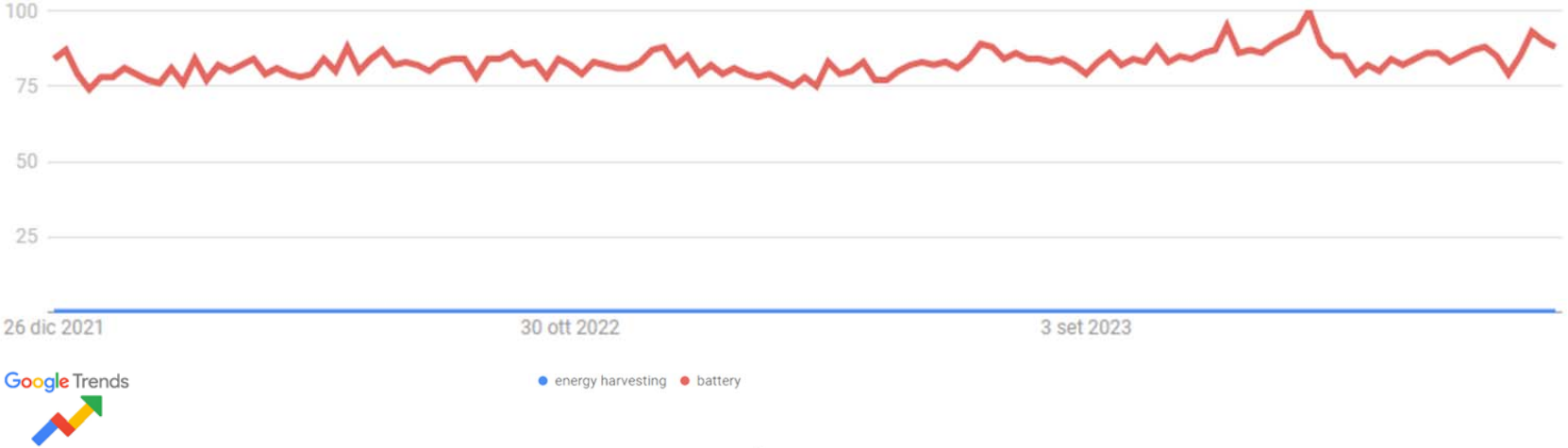


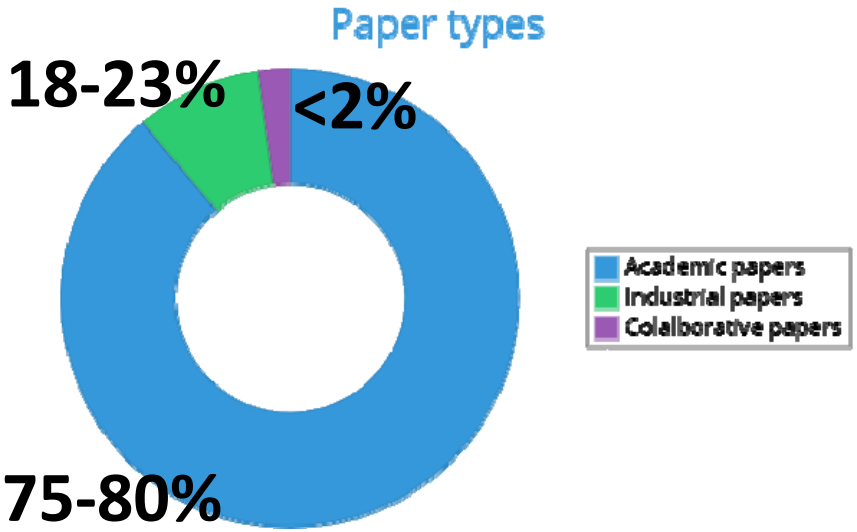
EH R&D overview

1st order simplification using KPIs comparison



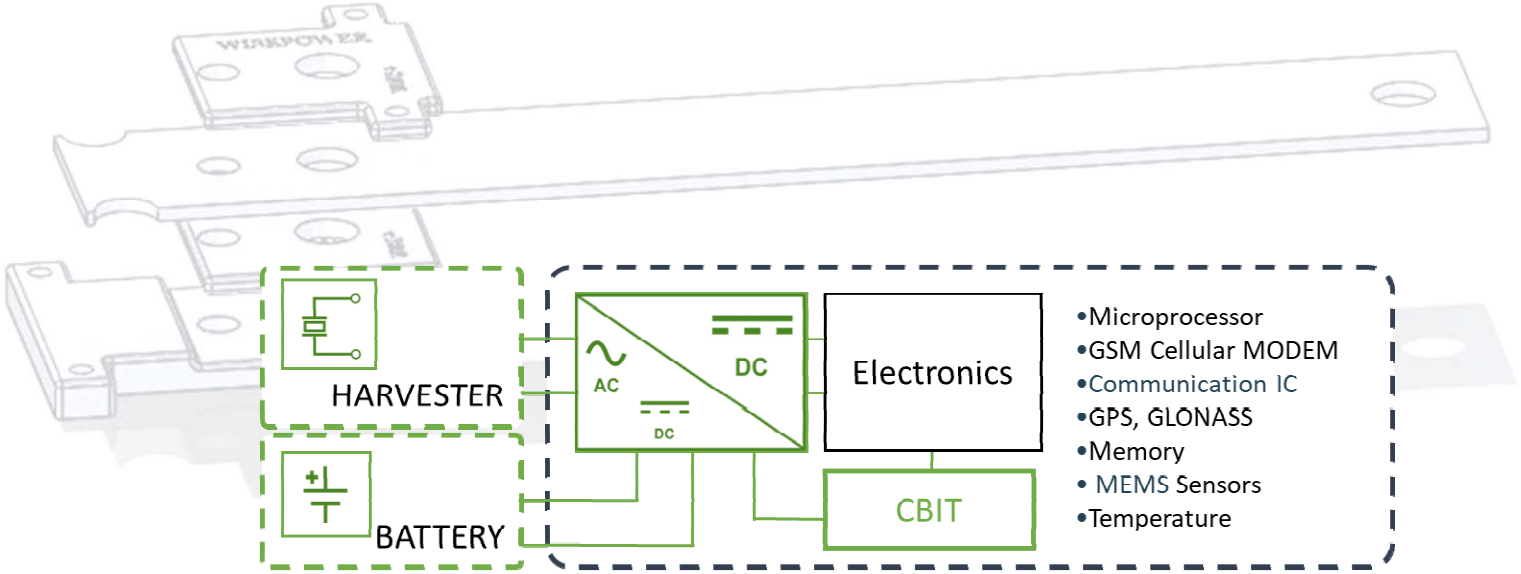
Filling the GAP

Papers/Publications on uEH are mostly produced by academics without an industrial partnership



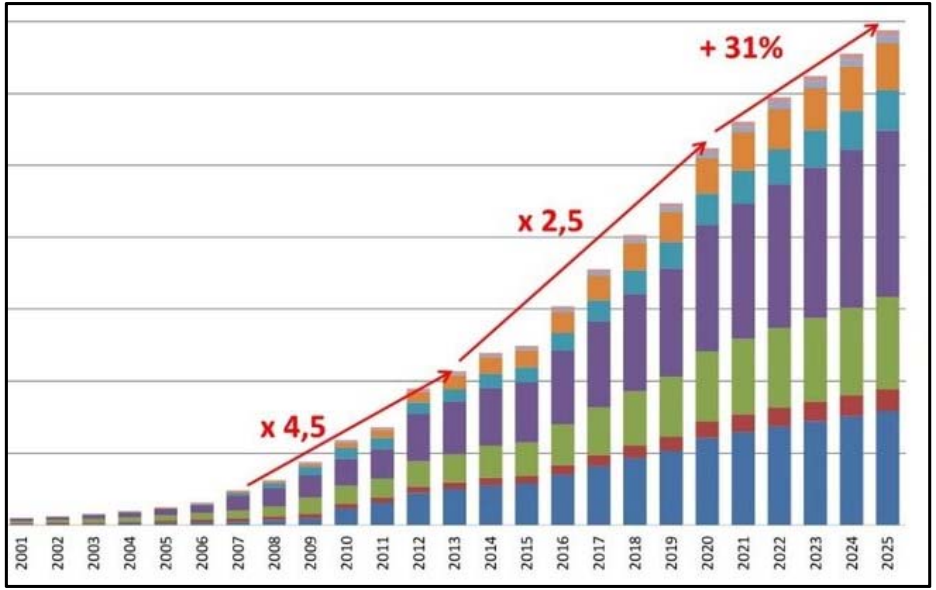
Filling the GAP

Many parts and blocks of an energy harvester system require new solutions and innovations



Filling the GAP

Energy demand trend



The increasing demand for energy efficiency is a key driver in the global IoT in energy market.

Most of IoT systems contribute to increase the overall energy consumption while Energy Harvesting has a key role for mitigating trend cutting consumption.

VIADUCT SHM case study: ANAS directive is to use 15 sensors for span leading to a energy consumption of 0.5 Wh 24/7.

Umbria area has more than 1000 viaducts or bridges with minimum 2 spans.

Filling the GAP

Current Trends in IoT: What's Driving Change?

[references from papers pub in 2024]

The Surge of **Low-Power** IoT Networks

The Magic of Edge Computing

AI and Machine Learning: The Smart Tweaks

The Evolution of Semiconductor Technology

Green Power: **Renewable Energy** in IoT

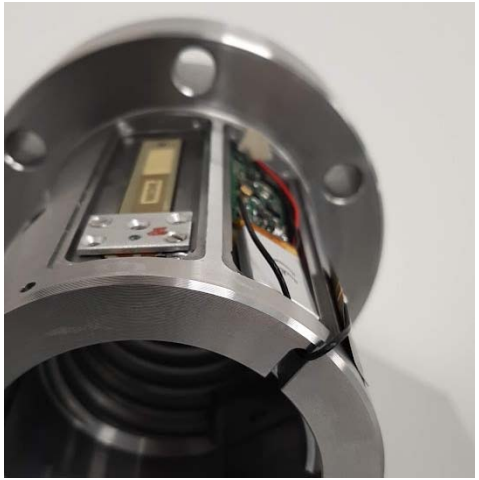
IoT Device Lifecycle Management

The Real-World Impact

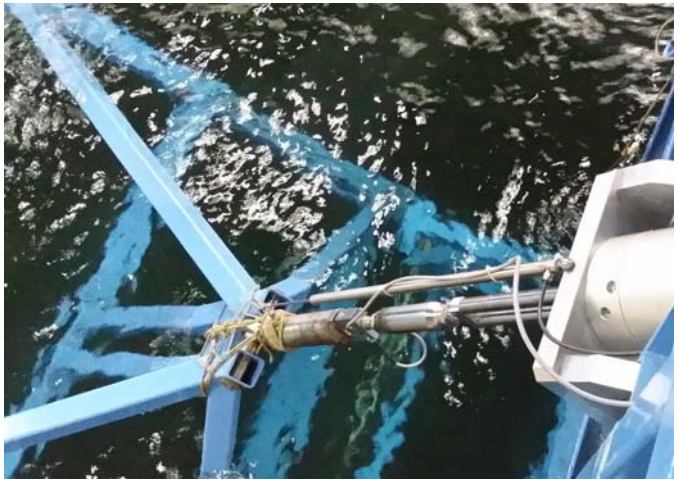
…a journey towards a more sustainable, efficient, and connected world.

Conclusions

- **Energy harvesting is a huge IOT enabler**
- **There's a GAP to fill**
- **Time is now**



…from low to higher power



Q & A

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Thanks very much for your time and attention!

Questions/comments???

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