



AMBIENT - 6G

**Towards standardized 6G connectivity for
ambiently-powered energy neutral IoT devices**

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14/02/2025



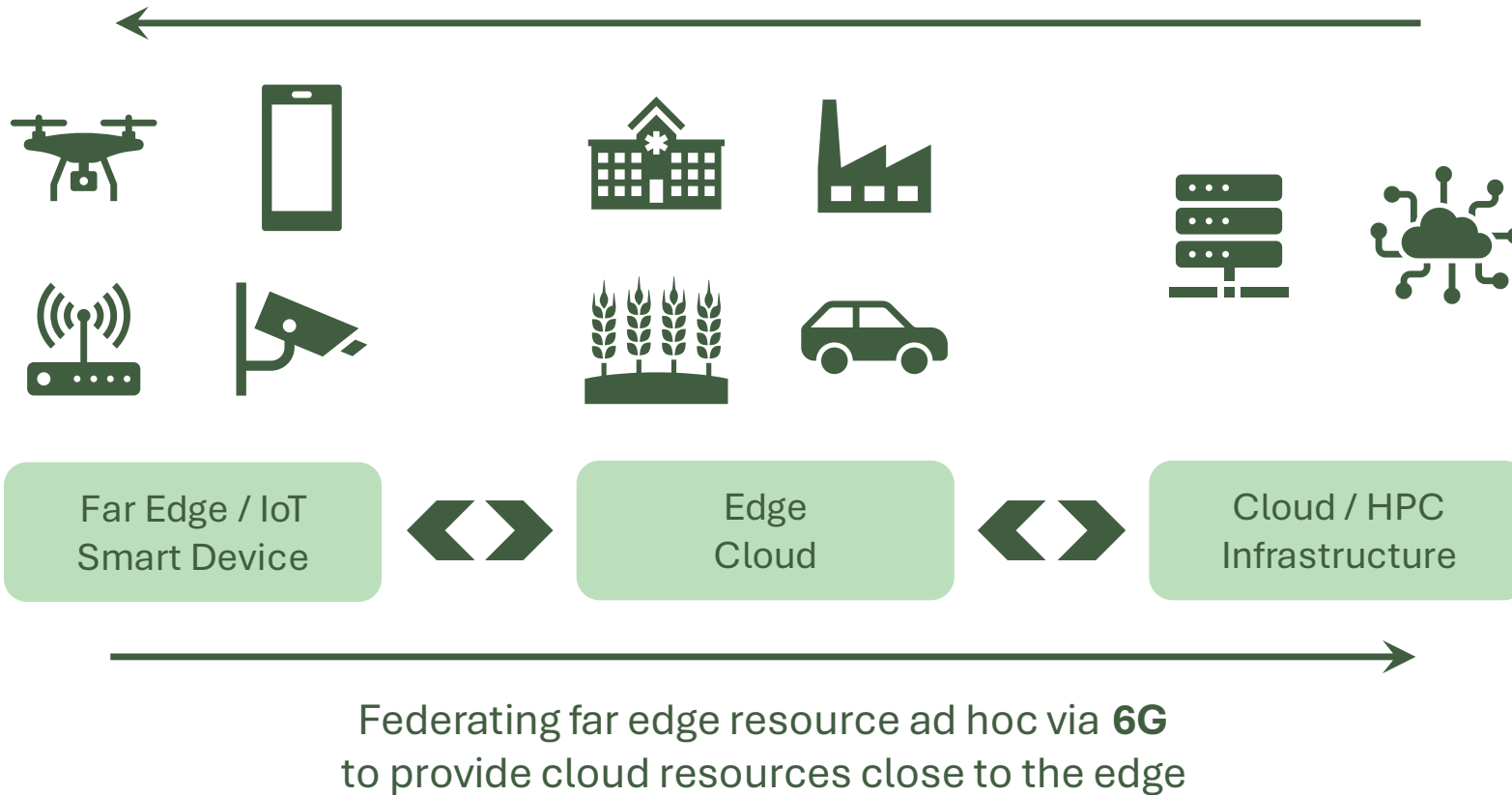
Co-funded by
the European Union

6G SNS

www.ambient-6g.eu

Trend: A growing number of smart edge devices that collect and process information, all powered by batteries

Trend: from Cloud to Edge to Far Edge
Bringing computing resources closer to the data

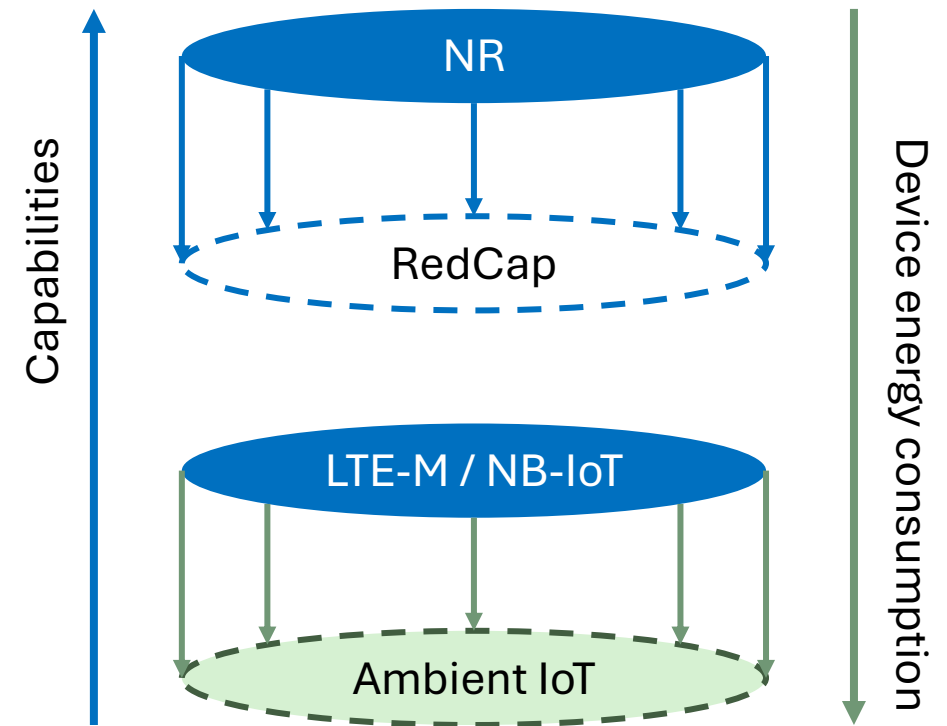
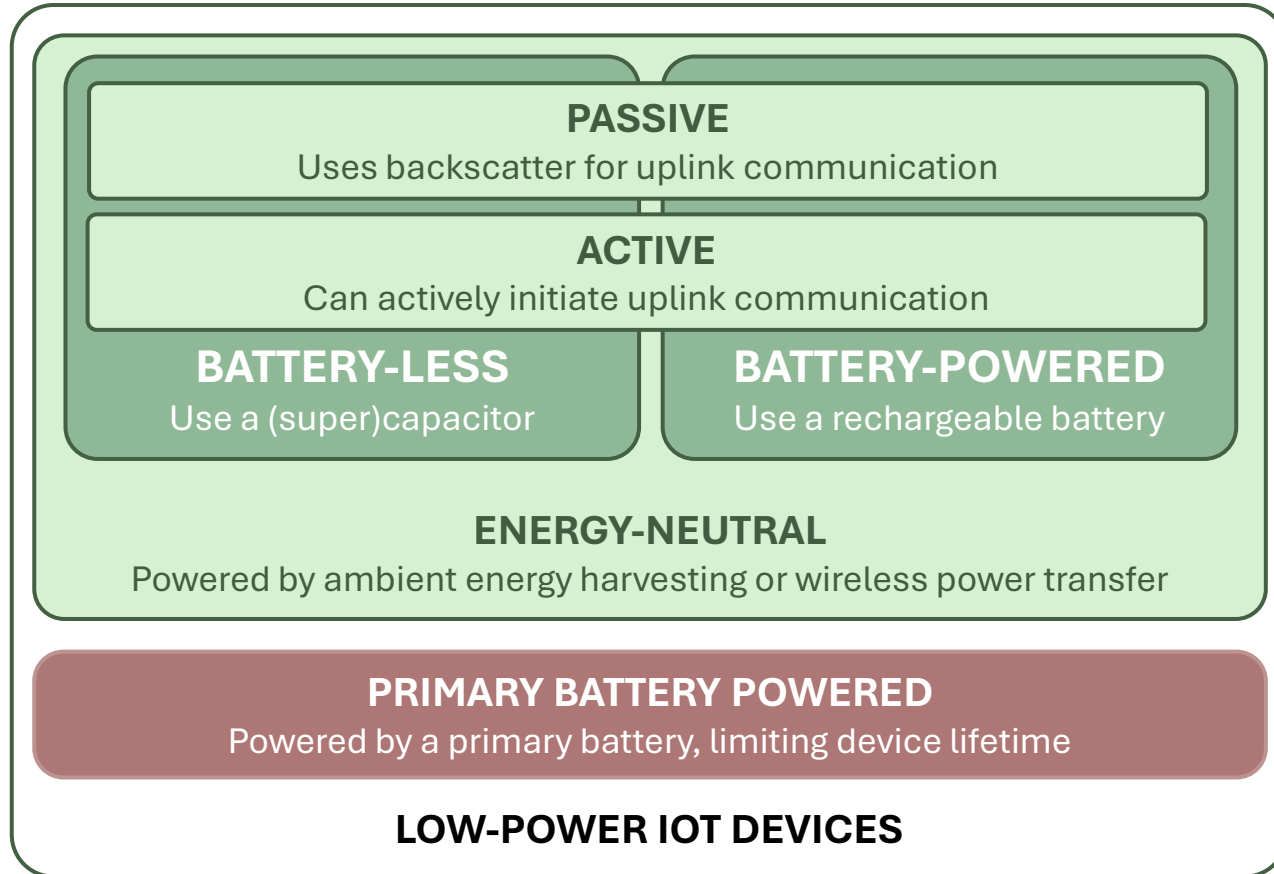


“ 78 million batteries will be dumped worldwide every day by 2025

-EnABLES EU project

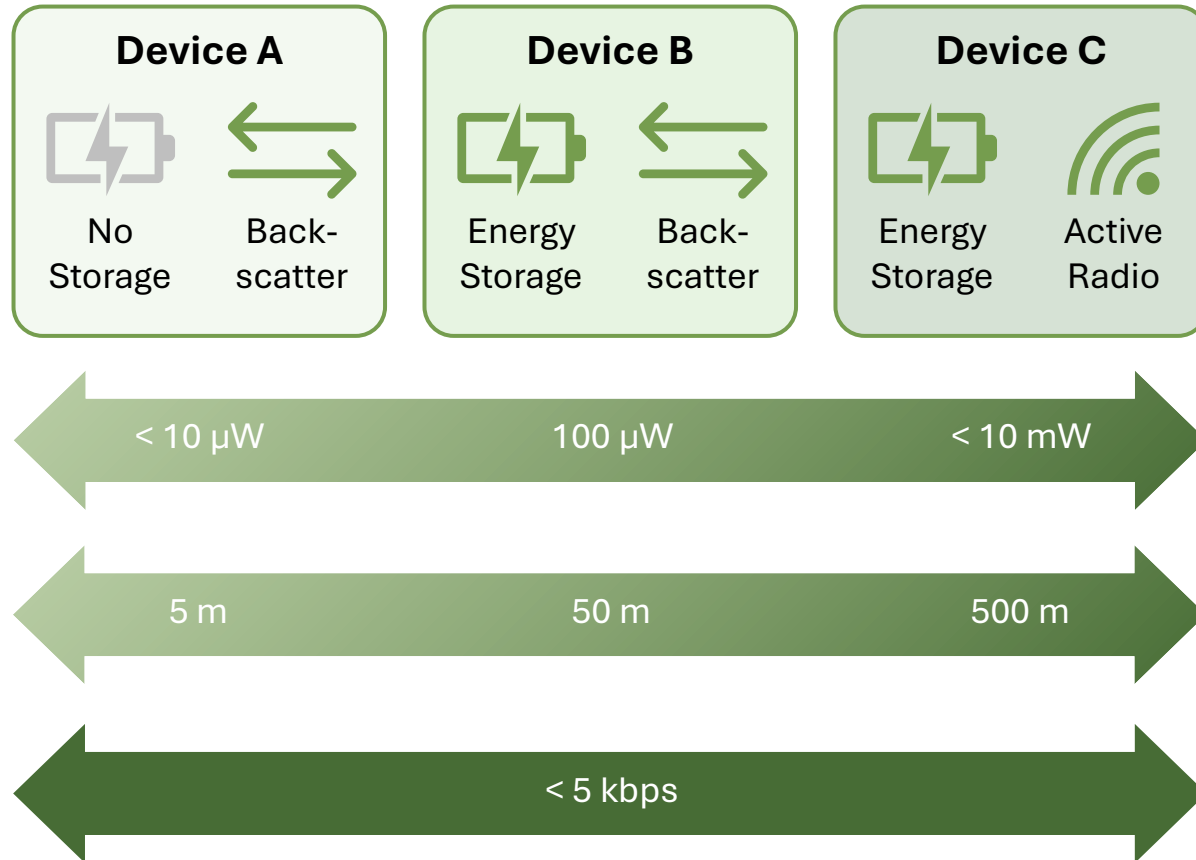
Source: “Europe’s Internet of Things Policy”

Motivation: Towards energy neutral IoT devices that do not rely on primary batteries

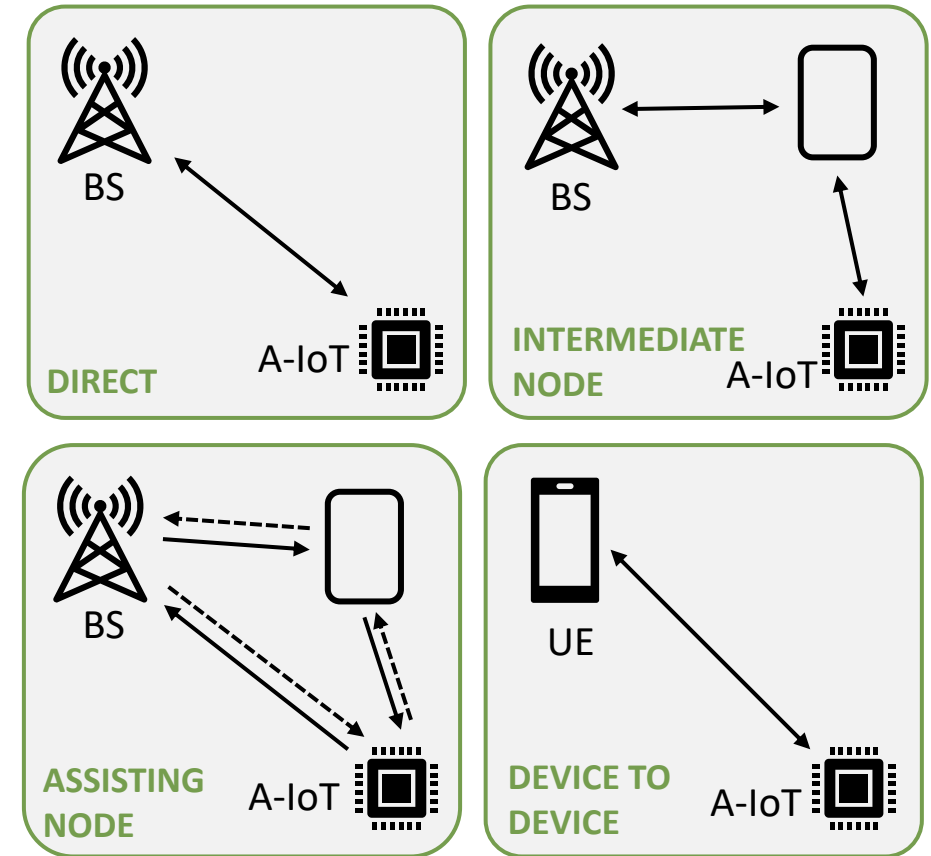


Ambient IoT standardization in 3GPP Release 18 and beyond

3 device categories under consideration:



4 deployment options:



Source: M. Butt, et al., "Ambient IoT: A Missing Link in 3GPP IoT Devices Landscape," IEEE Internet of Things Magazine, 2024.

AMBIENT-6G consortium



11 PARTNERS



6 EU COUNTRIES



3

Large
Companies



3

SMEs



5

Academic
Institutes



Semiconductors



Networks



Devices



Applications

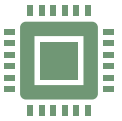


Project objectives



Design, prototype, validate, and standardize HW and SW technology solutions for intelligent AI-enabled energy neutral devices, and the 6G network infrastructure that connects them.

1



Holistic energy neutral device architecture

3



Energy-aware on-device and edge AI

5



Contributions to Ambient-IoT standards

2



Secure lightweight 6G connectivity

4



Proof of Concept demonstration

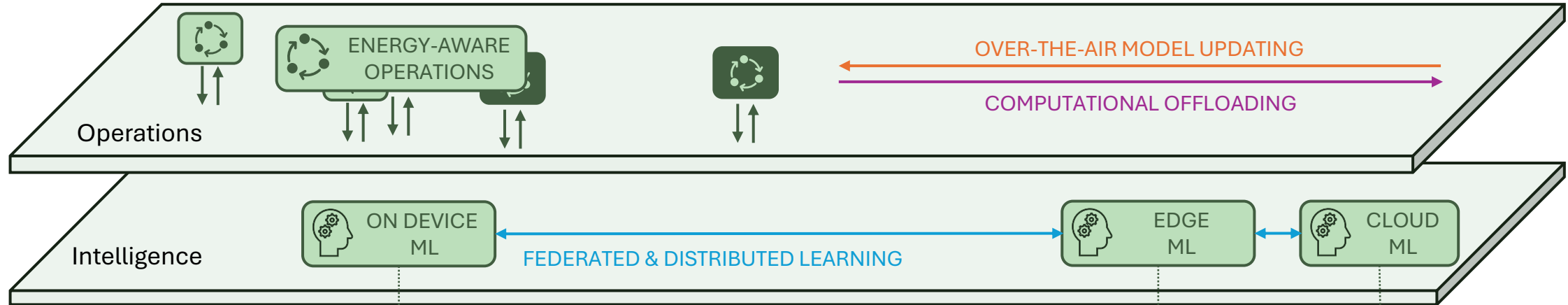
6



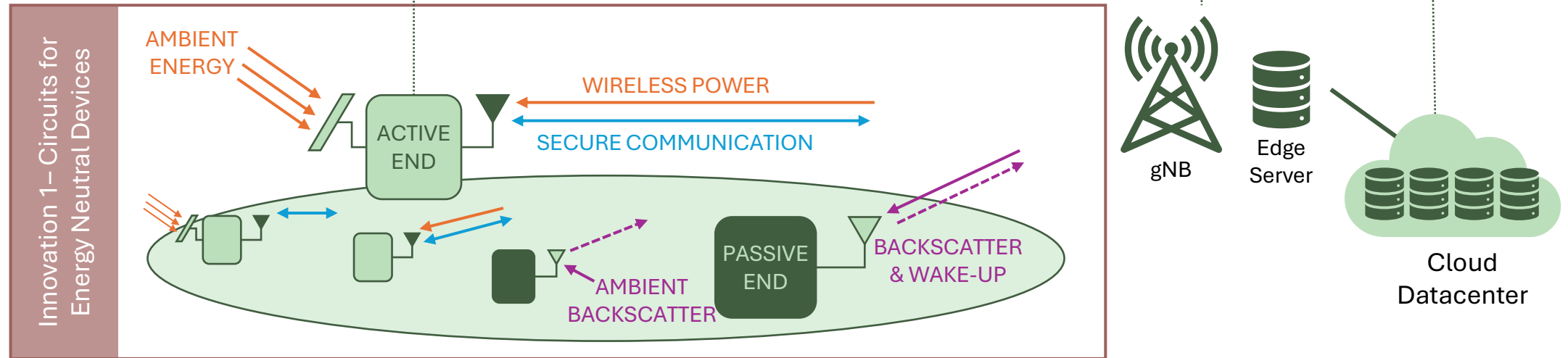
EU-relevant use cases and business models

AMBIENT-6G concept and key innovations

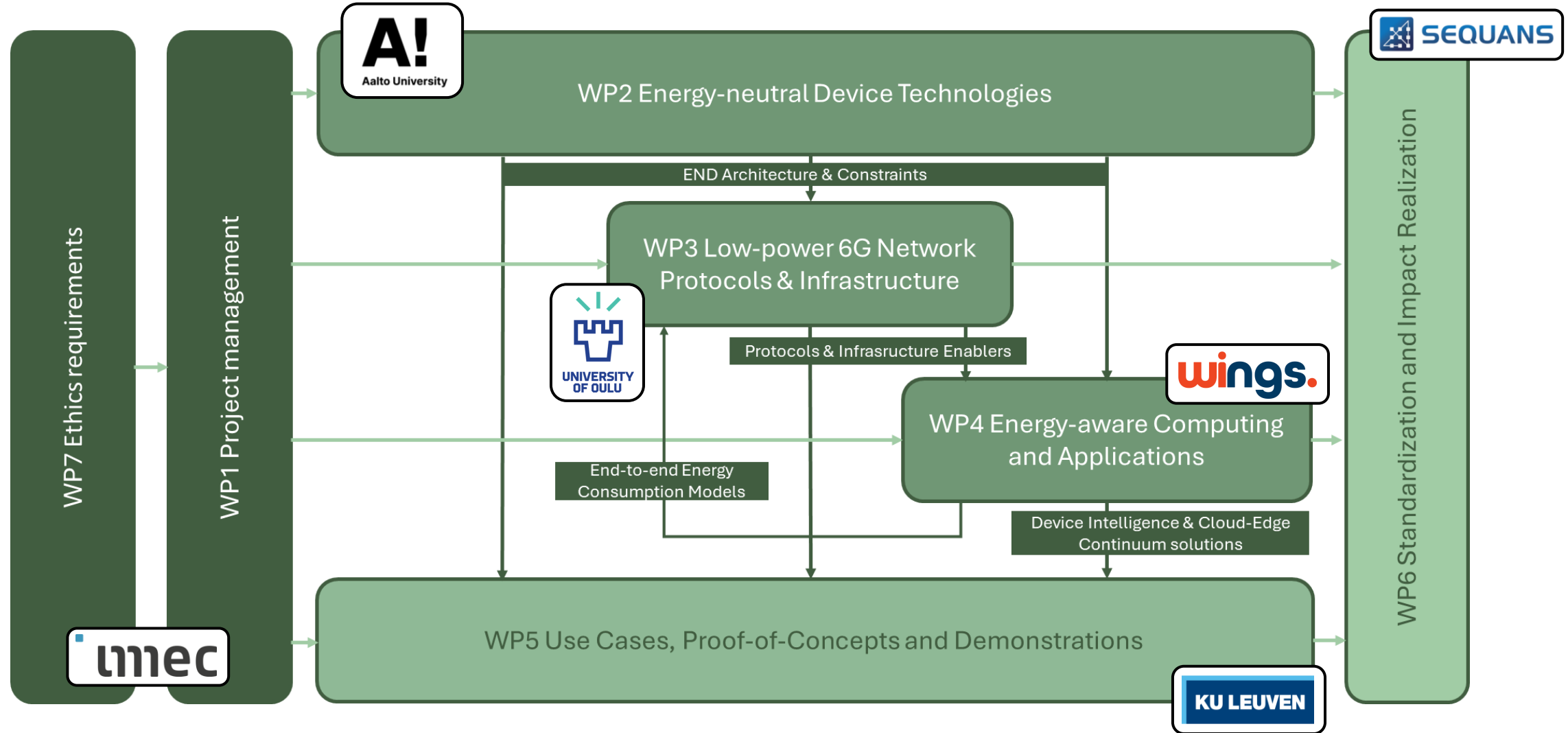
Innovation 3 – Cloud-Edge-Device Continuum

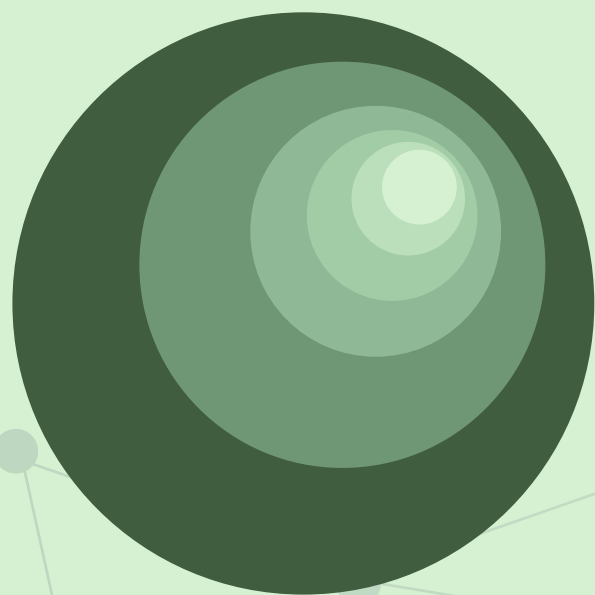


Innovation 2 – Network Architecture and Protocols



Work plan overview





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This project has received funding from the Smart Networks and Services Joint Undertaking under the European Union's Horizon Europe research and innovation programme under Grant Agreement No 101192113.

