
# “SWAPPABLE BATTERIES: A CLEAN REVOLUTION FOR URBAN EUROPEAN MOBILITY”

**European Parliament, Brussels**

***9 April 2025***

# What is Battery Swapping?







Funded by the European Union

*A robust standardization roadmap towards boosting innovation to market for swappable Battery Systems for L-cat vehicles deployment as a major contribution to safe, secure, resources and environmental*

Stan4SWAP

# Stan4SWAP in a nutshell

## Project 8 Partners

PIAGGIO GROUP · Fraunhofer ISI · HYBA POWER THE FUTURE · CENELEC · VUB · KTM F&E · Swobbee · BMGI Consulting

## Project Objectives

### Identification

Of needs for **pre-normative research** work in the context of swappable battery systems for light-category vehicles

### Prioritizing

**Standardization activities** towards **supporting the deployment** of swappable battery systems for L-cat vehicles

### Increase

**Stakeholders' engagement** establishing an active dialogue between the standardization community, industry and research

### Educating

And **raising awareness** about the role of standardization in supporting the decarbonization of mobility and transportation ecosystem

Funded by the European Union

# Close collaboration with SBMC


PIAGGIO GROUP

FORSEE POWER

Ampace

Bluev

eatron TECHNOLOGIES

HYBA POWER THE FUTURE

infineon

KEEWAY

KTM F&E

KYMCO

LG Energy Solution

NX Technologies

Pytes

SAMSUNG SDI

SCHAEFFLER

SINBON

Swobbee we share batteries

VeNetWork TALENTI D'IMPRESA

ATEX

FANTIC Motori Minarelli

VOLTAIRA

ZEWAY

acem The Motorcycle Industry in Europe

CONFINDUSTRIA ANCMA

anesdor

AVL

FIM

ITRI Industrial Technology Research Institute

# Advantages of swappable batteries

## For customers

- A longer range by simply swapping the battery at a station
- Peace of mind, less range anxiety
- Widespread charging infrastructure
- No worries about battery deterioration during its lifespan: always a good one
- The ease of not having to set up a charging facility at home or at work

## For environment

- Earlier electrification (vs gasoline- powered vehicles)
- The efficiency of swapping systems
- Light vehicles contribute to less congestion
- Reduced emissions in urban areas
- Improved re-use / recycling opportunities;
  Enhanced circular economy

## For manufacturers

- Efficient R&D due to standardization of components
- Quicker time-to-market
- Efficient production, economies of scale
- Increased attractiveness of the product in the eyes of the consumer

## For cities

- Swapping stations for light vehicles are very space efficient compared to car- charging stations that necessitate wide areas for parking while recharging.
- Light vehicles could swap their battery on the spot within minutes,
  with minimal space occupation.
- The station's batteries can be stacked in height = less area on the ground.

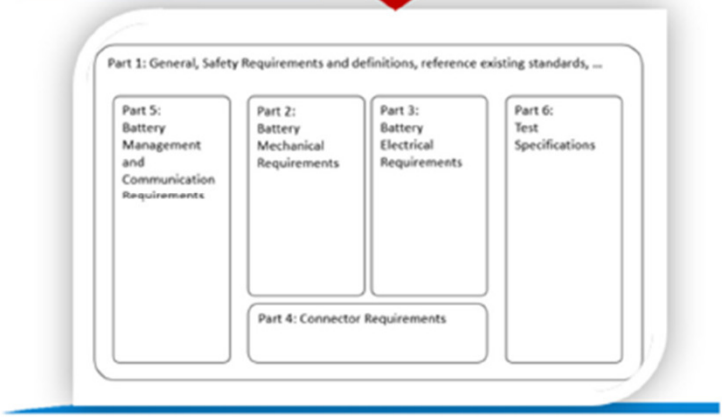
# On the road to a common standard…

**ISO TC 22 SC 38 WG2**
***Electric Mopeds & motorcycles***

**<- STATE OF PLAY ->**

**CEN/TC 301 WG19**
***Swappable battery system for L-cat. vehicles***

ISO Actions




CEN-CENELEC Actions

**ALTERNATIVE FUEL INFRASTRUCTURE REGULATION**
Annex II point 1.15. :
the European Commission demands the development of
***Technical specifications for battery swapping for L-category electric vehicles***

**COMMISSION IMPLEMENTING DECISION 1710 C(2022)**
on a standardisation request to the European standardisation organisations as regards communication exchange, electricity and hydrogen supply for road ..... under the 'Fit for 55' package:
*Annex I Table 1 point 8*:
***European standard containing technical specifications with a unified solution for battery swapping for L category vehicles***

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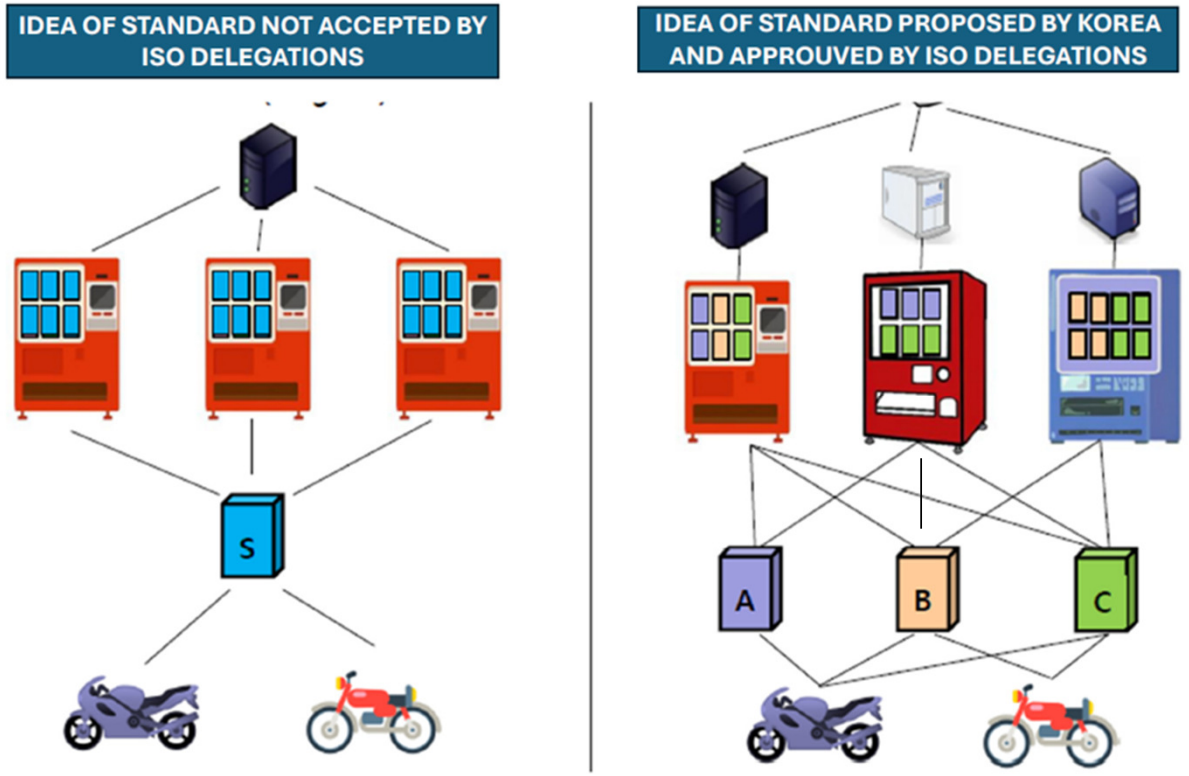
# On the road to a common standard…

## State of play at the ISO level

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# On the road to a common standard…

## In other words,…

**IDEA OF STANDARD NOT ACCEPTED BY ISO DELEGATIONS**

**IDEA OF STANDARD PROPOSED BY KOREA AND APPROUVED BY ISO DELEGATIONS**


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# Stay Tuned

Follow us

*and stay up to date*

- *NOVEMBER 2025*: END OF THE PROJECT
- *OCTOBER 2025*: WORKSHOP EVENT WITH FINAL RESULTS
- *JULY 2025*: INTERMADIATE WORKSHOP ON INTEROPERABILITY

LinkedIn

Newsletter

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