



Building a Green Battery Eco-System

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ITU-D Workshop on “Circular economy considerations and new technologies for combatting climate change”

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1. Background

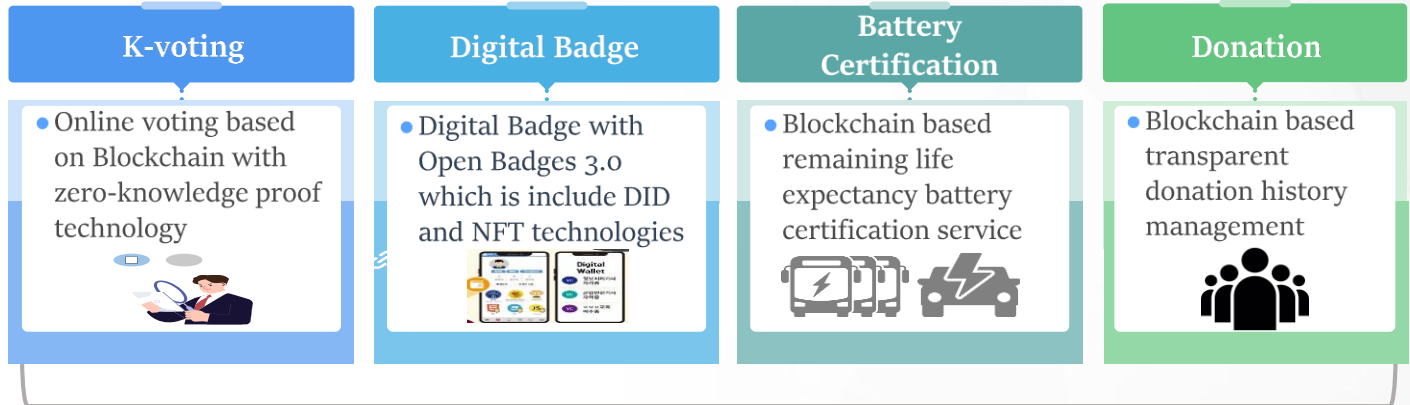
1. Blockchain Promotion Policy in Korea

Promotion Strategy

- (2018) Blockchain Technology Development Strategy
- (2020) Blockchain Technology Diffusion Strategy
- (2022) Blockchain Industry Promotion Strategy

Pilot Project

- Driving Blockchain Pilot Projects in the public and private sector
- 94 projects executed from 2018 to 2023 (55 in public, 39 in private)

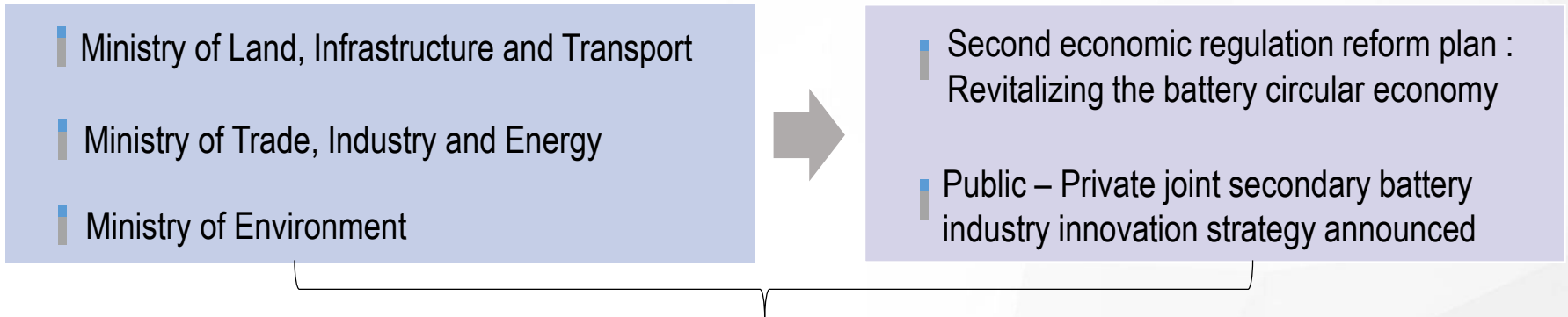


Deployed

1. Background

2. EV market is booming

- **The global electric vehicle(EV) market is booming**
- The economic and environmental value of the **battery circular economy** including the management of electric vehicle battery for second life and battery recycling **is growing**
 - * The EV battery recycling market size is around 57,395 million dollars in 2040
- **The number of electric vehicles in Korea has exceeded 500,000 in 2023**
- This trend is expected to accelerate further as the **‘Eco friendly vehicle purchase target system’*** comes into effect from April 2023
 - * Mandating that large scale private vehicle users such as rental cars, large corporations, buses, taxis, and cargo purchase eco friendly vehicles at a certain rate when purchasing new vehicles (city bus : 6%, taxi : 7%)



1. Background

3. Battery Circular Economy

- **The battery circular economy** is an economic model that pursues sustainability by recycling and reusing used batteries based on the battery life cycle

Battery Circular Economy Overview

Measures	1	Waste Batteries Recycling : Extract rare metals from batteries and use them to manufacture new batteries or sell them to other industries
	2	Waste Batteries Reusing : Remodeling part of the battery pack or using it in its original form for purposes other than its initial use
Benefits	1	Creating economic benefits and employment based on revitalizing the waste batteries industry
	2	Creating economic value through recovery of rare metals such as cobalt, nickel, and lithium
	3	Reduce carbon dioxide emissions

2. Green Battery Certification

1. PMGROW x PARAMETA



Measure battery life



Blockchain specialist company



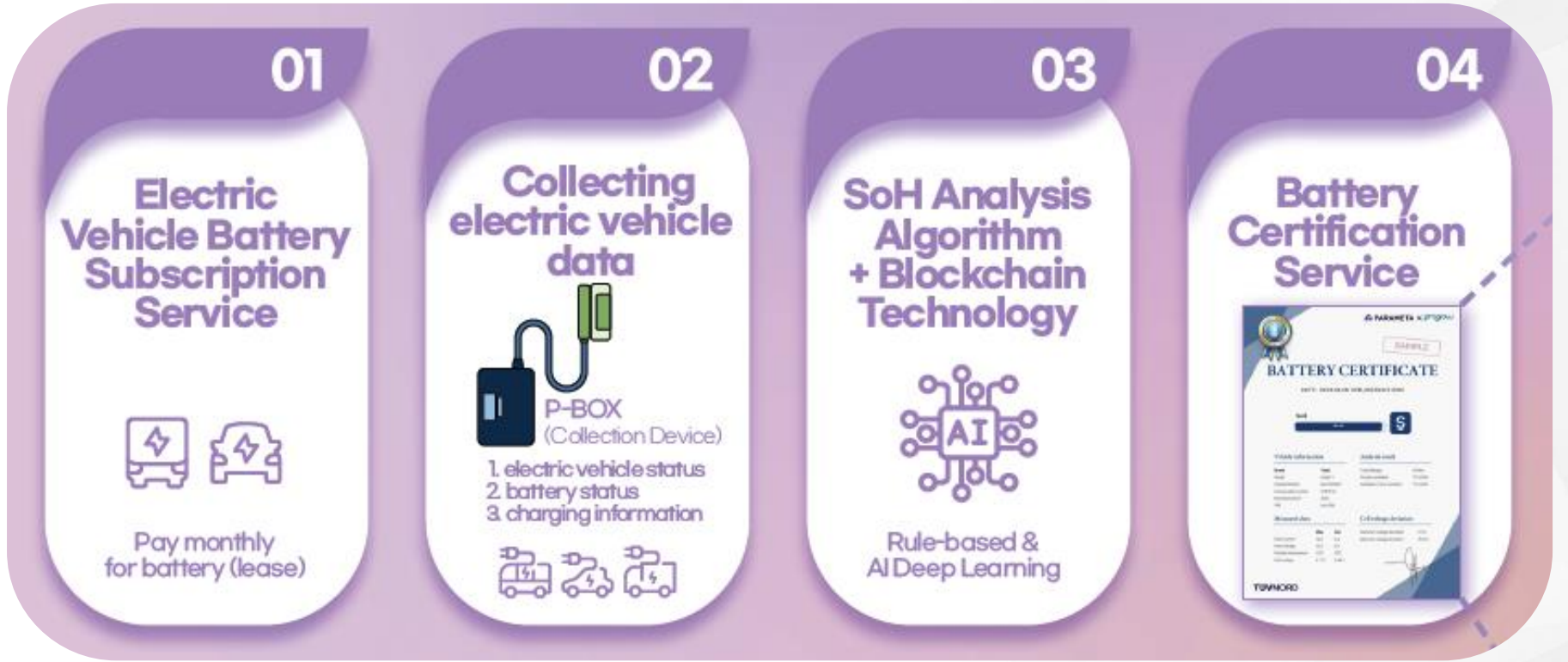
Battery value chain company

- **PMGROW** provides various services related to EVs through its 10+ years of experience in manufacturing EV battery packs, battery management technology, and BaaS platform
- **PARAMETA** a leading Korean blockchain company provides a range of transparent and reliable blockchain technologies and services

2. Green Battery Certification

2. Blockchain-based battery certification service

- **Battery residual life certification service** that collects driving data of electric vehicles and applies AI analysis algorithm and blockchain technology



2. Green Battery Certification

2. Blockchain-based battery certification service

PARAMETA x pmgrowse

BATTERY CERTIFICATE

DATE : 2023.04.28 CER_20230413-0001

SoH: 99.4% **S**

Vehicle information		Analysis result	
Brand	Tesla	Total Mileage	47.4km
Model	model Y	Actually available	72.4 kWh
Detailed Model	Abc1234567	Available in new condition	77.4 kWh
license plate number	12*1234		
Manufactured in	2022		
VIN	zxcv789		

Measured data		Cell voltage deviation	
	Max	min	
Pack current	10 A	2 A	Maximum voltage deviation 0 mV
Pack voltage	10 V	5 V	Minimum voltage deviation 70 mV
Module temperature	25°C	18°C	
Cell voltage	4.17 V	3.49 V	

TÜV NORD



Data-driven insurance product matching

Linking insurance products and developing insurance products based on battery status



Electric vehicles on the Secondary market

Objective battery efficiency verification enables rational trading



Electric Vehicle Maintenance

Leverage maintenance data to accurately diagnose battery health

TÜV NORD is a world wide accredited certification body that offers independent third-party assessments of management systems, against different standards, including. ISO 9001 Quality Management.

2. Green Battery Certification

2. Blockchain-based battery certification service

Feature 1.

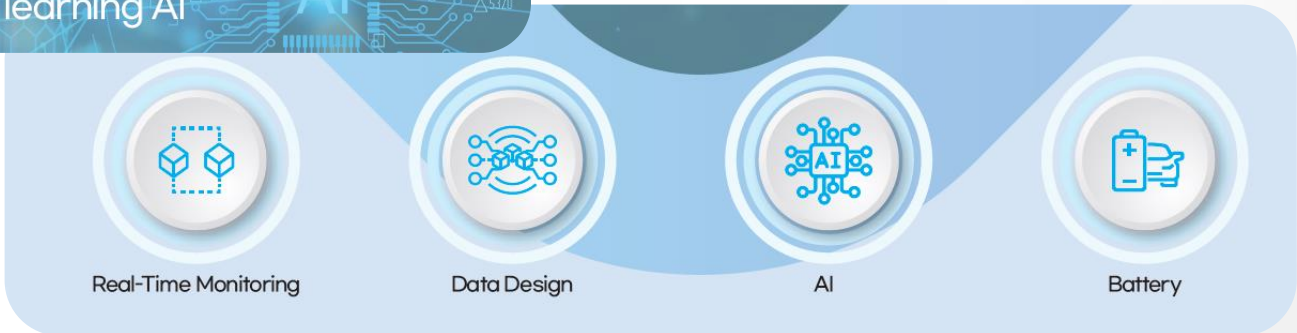
Blockchain



Feature 2.

AI Data Algorithm

EV Battery Data Deep learning AI



2. Green Battery Certification

3. Blockchain-based battery certification service

- **Verified blockchain based battery certificates** are utilized in a variety of industries



Insurance



Car Rental Company



Used EVs Trading



3. Service Flow (video)

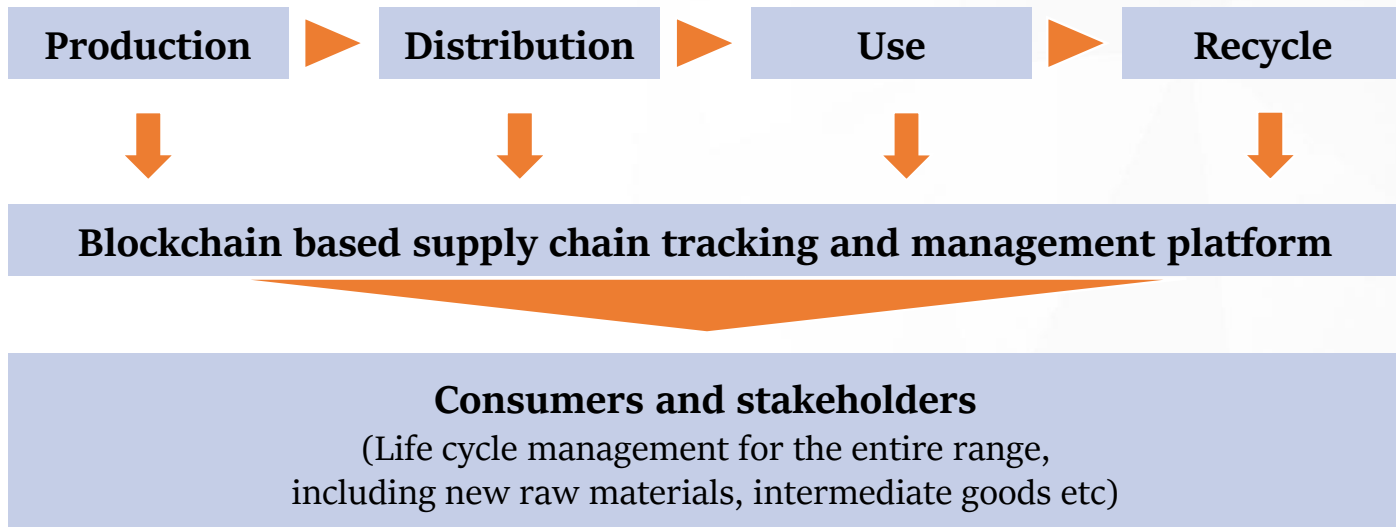


4. Future Plan

EU is promoting the gradual introduction of a “Digital Product Passport”
 for a physical products distributed within the Union from 2026
 in order to achieve Net-Zero by 2050

Establishment of a blockchain based supply chain tracking and management platform

- Eliminate barriers to overseas expansion of Korean companies into the EU and other countries
- Ensure supply chain transparency



Thank You!

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