# Transport Management System for Smart Mobility

**Zenmov Inc.**

**The 5th ASCN
High Level Meeting**

**26 October, 2023**

# Zenmov Inc.

## We develop IT solutions that power the public transportation and the shared mobility.

### Zenmov Inc.

- Developing IT Service for Smart Transportation

- Headquartered in Tokyo

100%

Subsidiary

### Zenmov Philippines Inc.

## S M O C (Smart Mobility Operation Cloud)

| For sharing services | For transportation operators | Transportation of goods and services |



〈Car sharing〉 〈Micromobility〉

〈Company car rental〉 〈Company car sharing〉

PRT (Primary Rapid Transit)

〈Logistics〉

# Current Areas of Our Projects



- Japan
- Edmonton (Canada)
- Abu Dhabi (UAE)
- Clark (The Philippines)
- Manila (The Philippines)
- Bandar Seri Begawan (Brunei)
- Maputo (Mozambique)
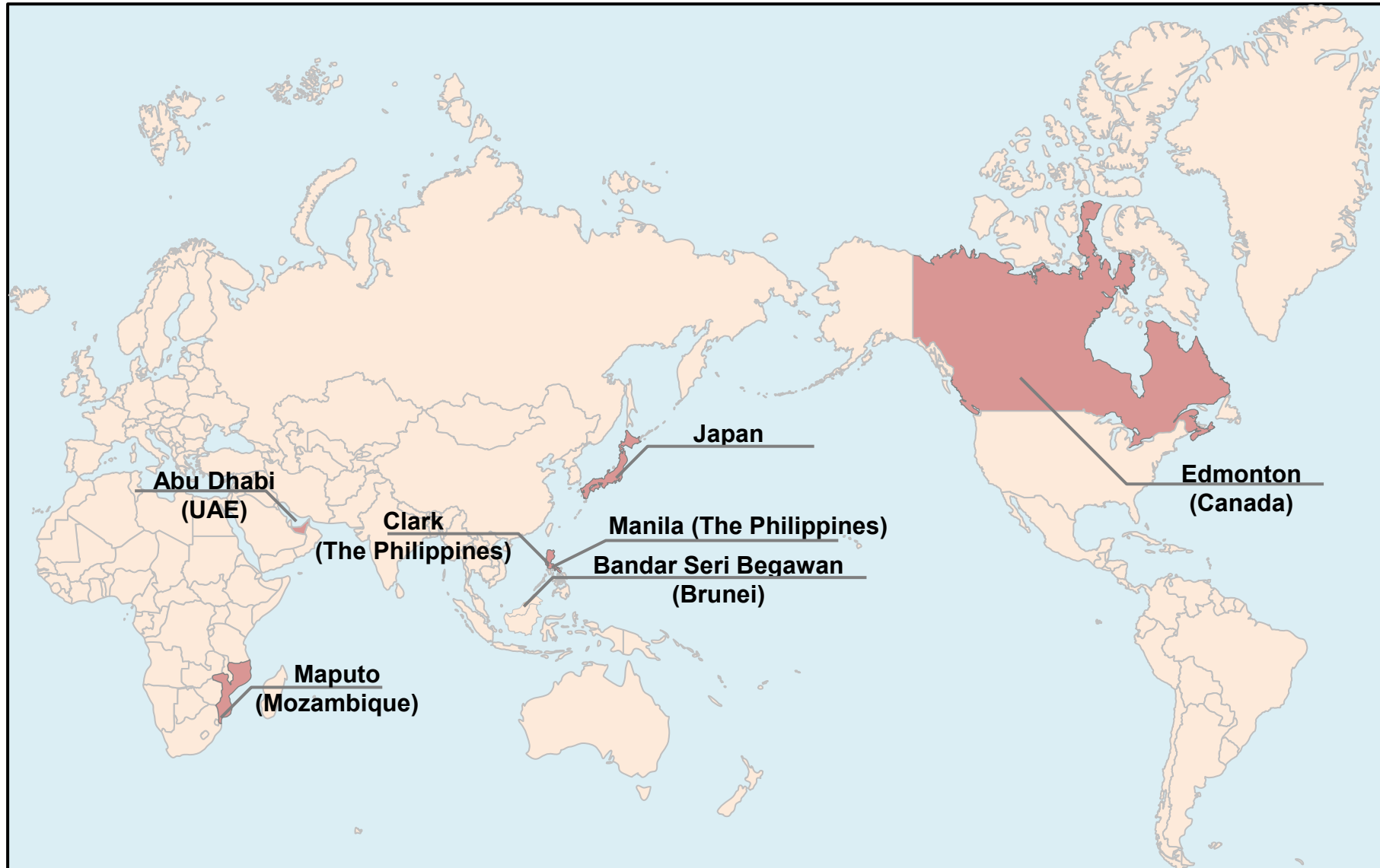
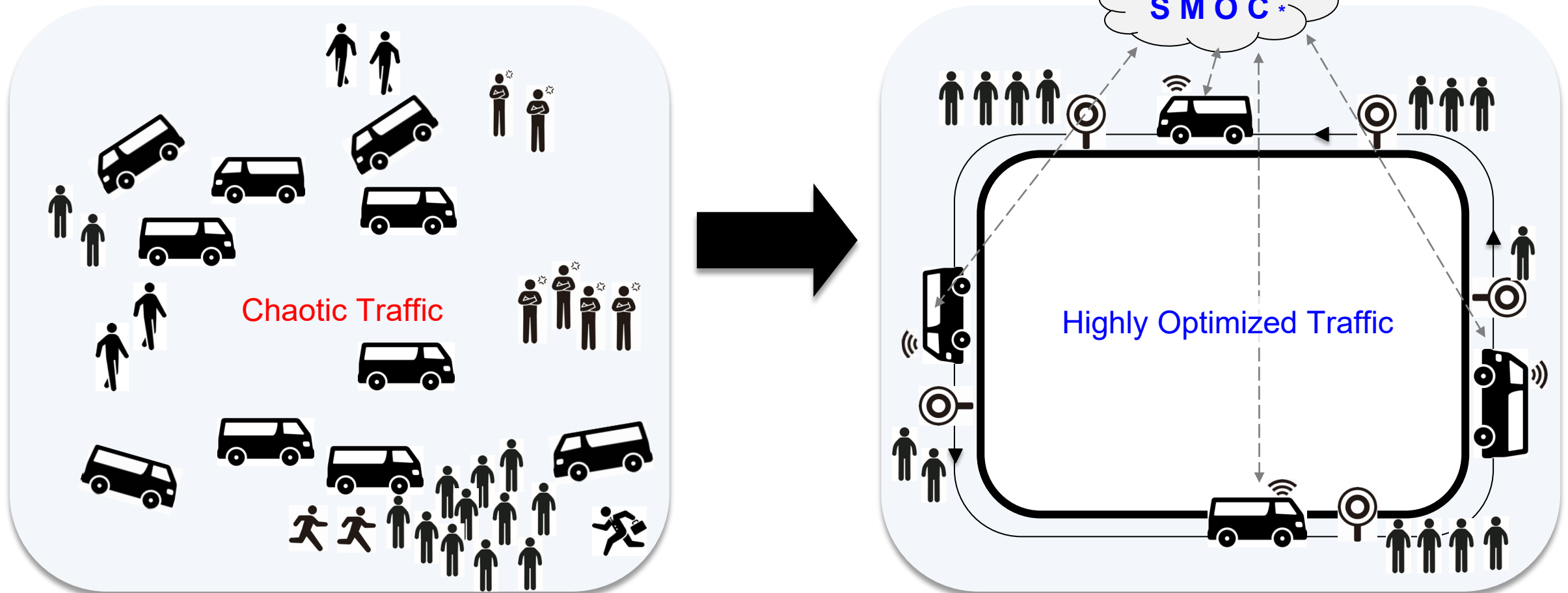# Our Theme = Congestions

# Our Theme = Imbalance of Demand and Supply

Long Line

Vacant

# Value Added Approach Brought by Zenmov

We bring a discipline in the public transportation by using IT called SMOC.



**Chaotic Traffic**

**S M O C** *

**Highly Optimized Traffic**

*SMOC : Smart Mobility Operation Cloud

# A Software Organizes Operation and Hardware

## Operation Management & Fleet Management for the public transportation

### SMOC (Smart Mobility Operation Cloud) provided by Zenmov

**Operation Management**

- Optimized Scheduling (AI schedule creation)
- Vehicle Interval Control (Optimized vehicle interval)
- Performance Analysis
- Operation Mode Control (Fixed Route, OnDemand, Logistics)
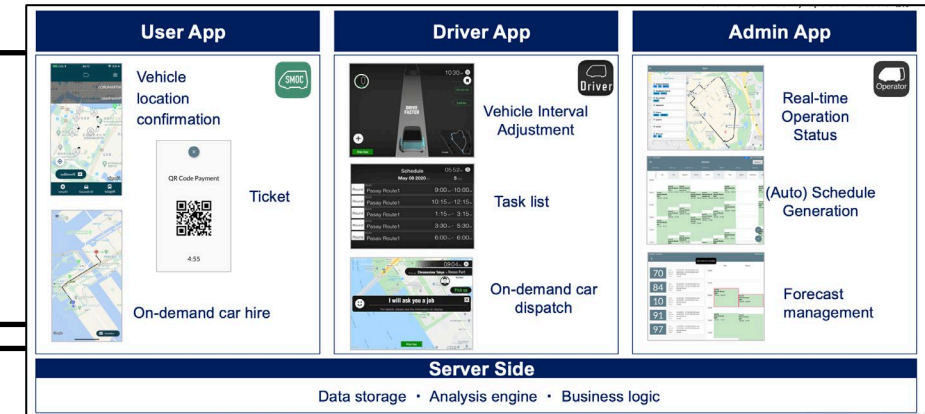- Passenger Benefit (e.g. ETA)
- Ticket

＜Rental Car＞
- Booking for rental car
- Locking and Unlock by a smart phone
- eKYC

＜Logistics＞
- EC Delivery

**User App**
Vehicle location confirmation
QR Code Payment
Ticket
On-demand car hire

**Driver App**
Vehicle Interval Adjustment
Task list
On-demand car dispatch

**Admin App**
Real-time Operation Status
(Auto) Schedule Generation
Forecast management

**Server Side**
Data storage ・ Analysis engine ・ Business logic

**Fleet Management / Device Management**

| EV/FCV/Gasoline/Diesel with drivers | Self-Driving Car | Smart Pole<br>- Monitoring safety and collecting transportation demand data | Drone<br>- Monitoring operation and collecting transpiration demand data | Personal Mobility (e.g. E-Bike) | Rental Car （EV、FCV、Fuel） |

# Features of SMOC

**Three major features to improve the operational efficiency of transportation**

| Optimized Scheduling | Vehicle Interval Control | Drivers' performance monitoring |
|---|---|---|

### Issues = Supply-Demand imbalance

- Buses don't come to people who want to move.
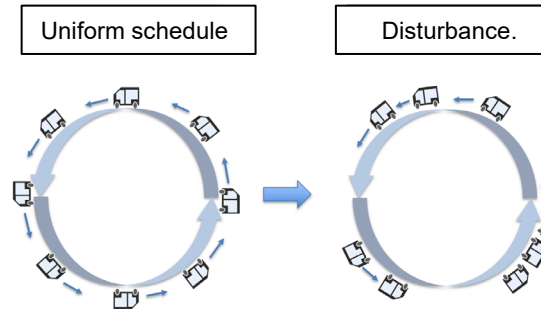- Lots of buses exist where there is no one to move.



Long Line                    Vacant buses

### Solutions = Introduction of an AI-based optimal vehicle dispatch system
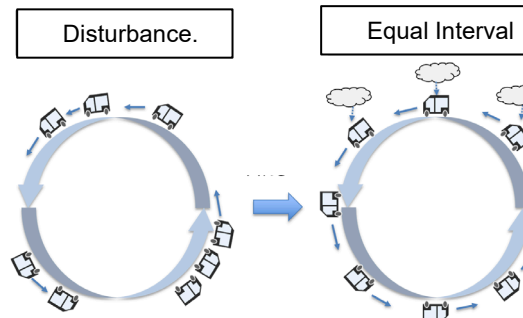
- Schedule according to travel demand
- Dispatch vehicles where they are needed

### Issues = Disturbances (traffic jams) occur between vehicles



Uniform schedule          Disturbance.

### Solutions = Introduction of vehicle adjustment function



Disturbance.          Equal Interval

### Issues = Driver performance is unknown

### Solution = Visualize and improve driver productivity



Actual working hour

Downtime

Distance between parking and Normal Route

# Our Achievements in the Philippines

■SMOC Achievements (1) Intramuros, Metro Manila



■SMOC Achievements (2) Pasay city



Convenient transportation services created demand for mobility and also created jobs.
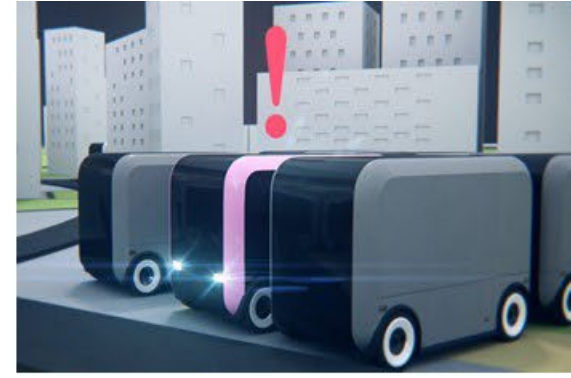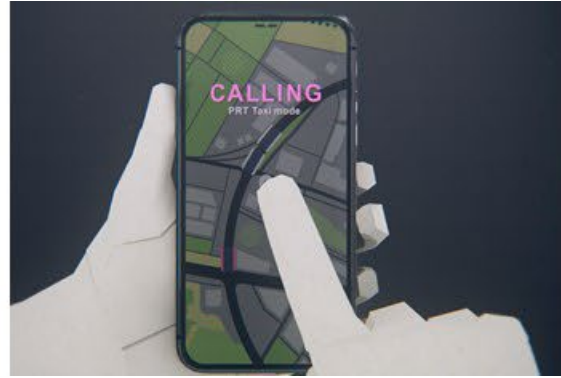
Operation of a line connecting the railroad station (LRT ) with new and old commercial areas.
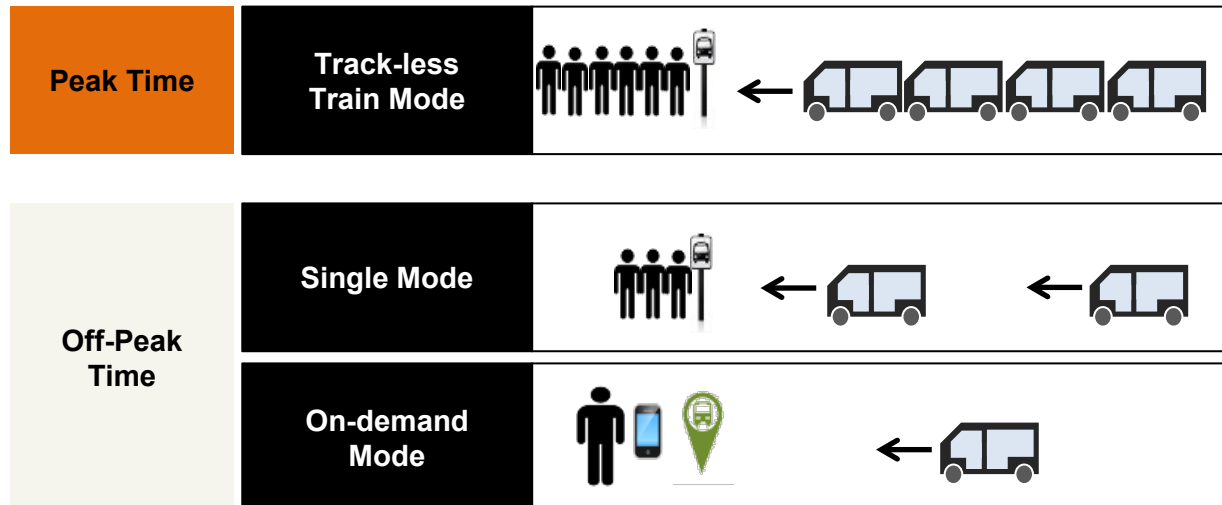
# For New Cities

## PRT（Primary Rapid Transit）



**A single eco friendly vehicle can perform multiple roles.**

Reduces traffic congestion and saves energy

Contributes to improved convenience

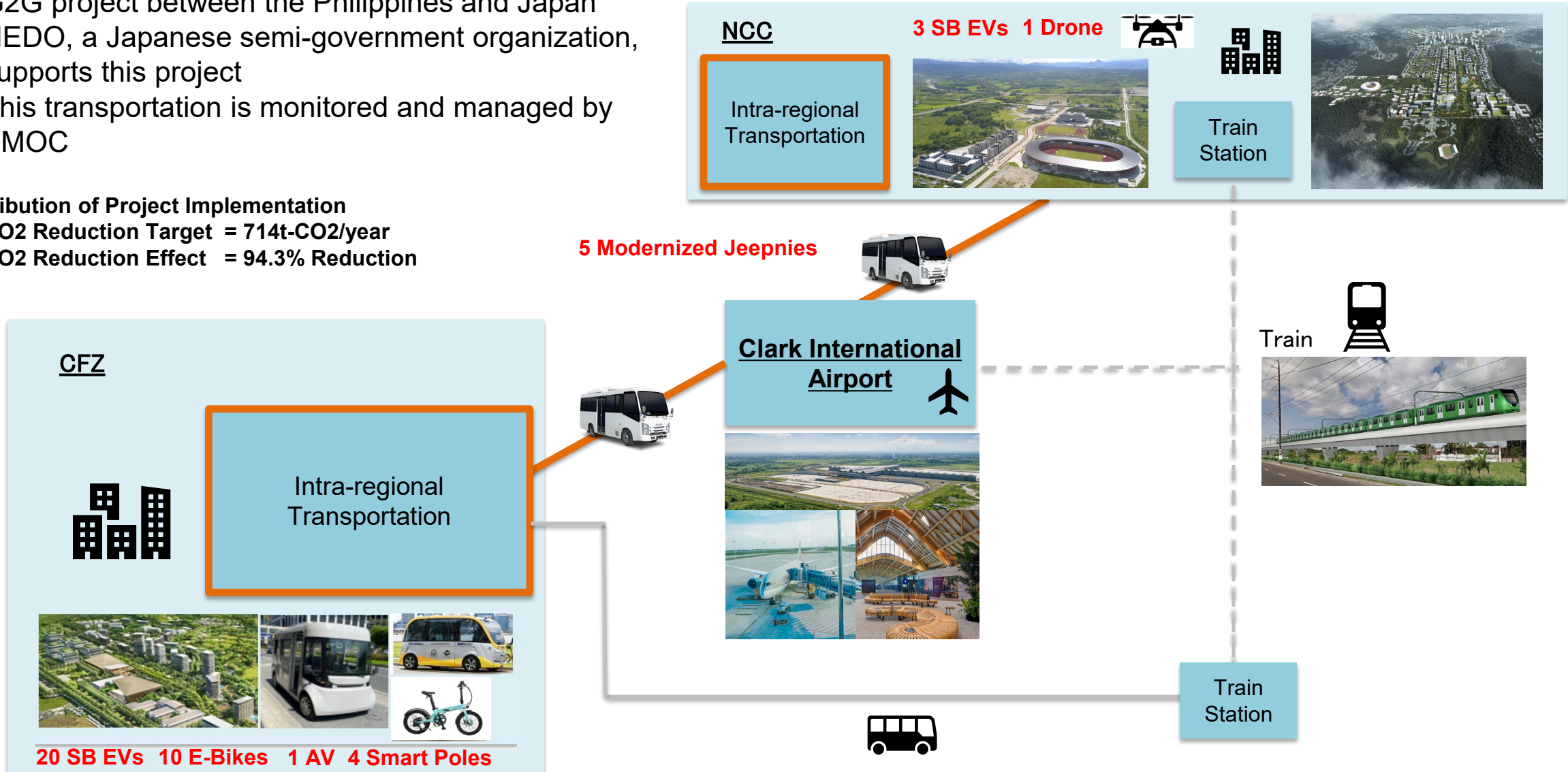| Peak Time | Track-less Train Mode | |
|---|---|---|
| Off-Peak Time | Single Mode | |
| | On-demand Mode | |

# An Ongoing Project in Clark Area in the Philippines

- G2G project between the Philippines and Japan
- NEDO, a Japanese semi-government organization, supports this project
- This transportation is monitored and managed by SMOC

**Contribution of Project Implementation**
- **CO2 Reduction Target = 714t-CO2/year**
- **CO2 Reduction Effect = 94.3% Reduction**

NCC

**3 SB EVs  1 Drone**

Intra-regional Transportation

Train Station

**5 Modernized Jeepnies**

CFZ

Intra-regional Transportation

**Clark International Airport** ✈

Train

**20 SB EVs  10 E-Bikes  1 AV  4 Smart Poles**

Train Station

Train Station

# Thank you so much for your kind attention.

## Zenmov Inc.

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