# Human Resource Development for Eco-Drive with Messages : Based on Data Analysis
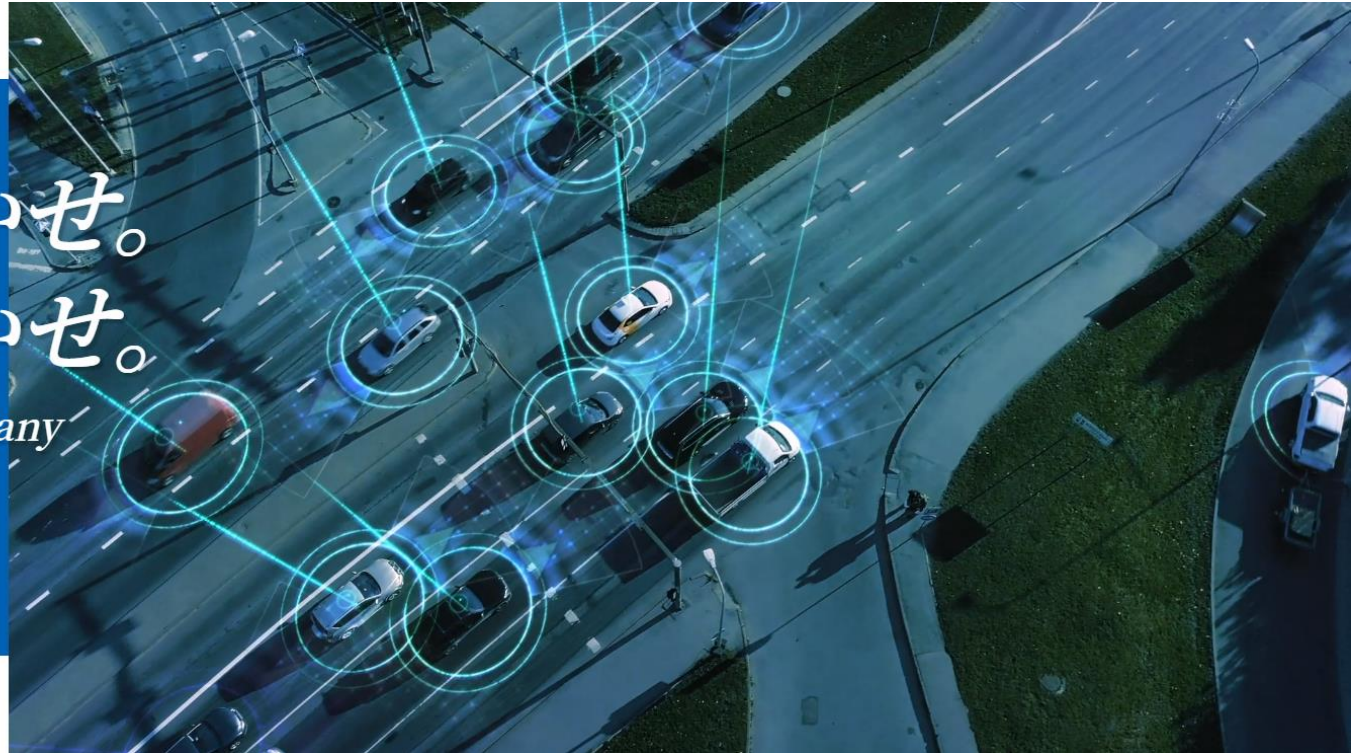
ASUA Inc. Japan

Even if it's automated, people will still be responsible for it.

Enhancing

Generalizing
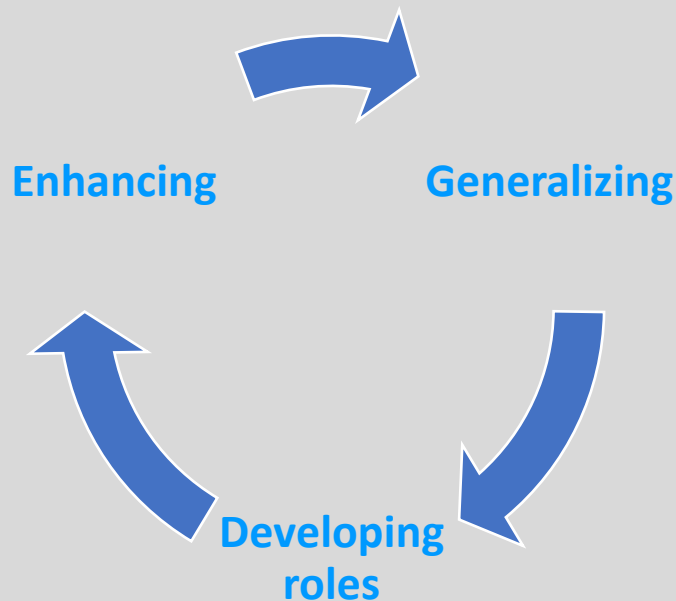
Developing roles

1. **Developing roles of human**

2. **Enhancing** with technology

3. **Generalizing**

# 1.   Developing roles of human

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# Our failure experience



Companies that used our products improved fuel efficiency by an average of **15%** or more.

Magical ceramic, which was supposed to improve fuel efficiency.

(In fact, the effect was only within the margin of error!)
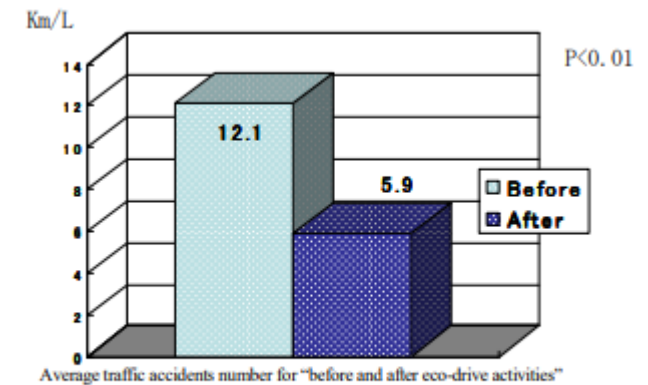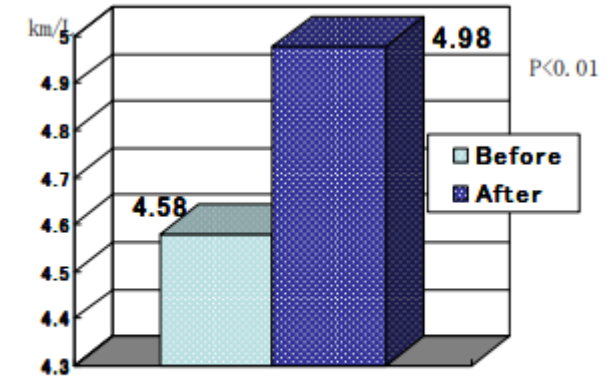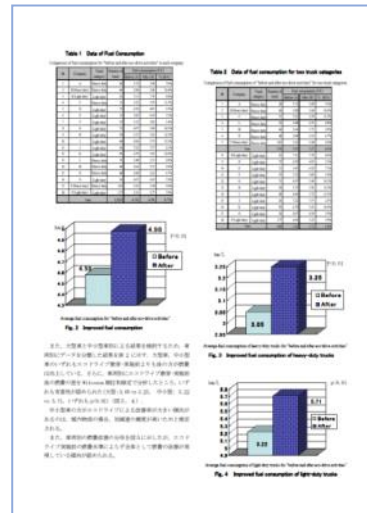
The true effect is a **behavioral change; eco-driving**.

**The sources** of behavioral changes were **communication** between...

・ Drivers and us

・ Drivers and their Managers

・ Driver to driver

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**Our article of eco-driving**

**as corporate level**

【**Result of the behavioral change**】

Fuel Efficiency **8.7%** Improved

Traffic Accidents **51%** Reduced

(Company average. Excerpt from paper data)



Presented at the Society of Automotive Engineers of Japan Spring Meeting on May 25, 2006.

Researcher: Hiroshi Maji, ASUA Corporation, Prof. Nobuyo Kasuga, Shibaura Institute of Technology, Prof. Yasuhiro Taiseii, and Taro Ishi, Department of Science and Engineering Waseda University.



Average fuel consumption for "before and after eco-drive activities" ※

**Fig. 2   Improved fuel consumption**



Average traffic accidents number for "before and after eco-drive activities"

**Fig. 6   Fluctuation of number of traffic accidents**

Wilcoxon rank-sum test (significant difference test for data that do not show a normal distribution)

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# 2. **Enhancing** with technology

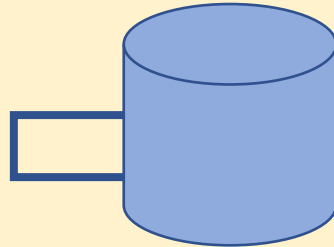# Converting data into humanistic messages
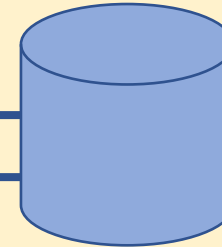
## Conversion flow
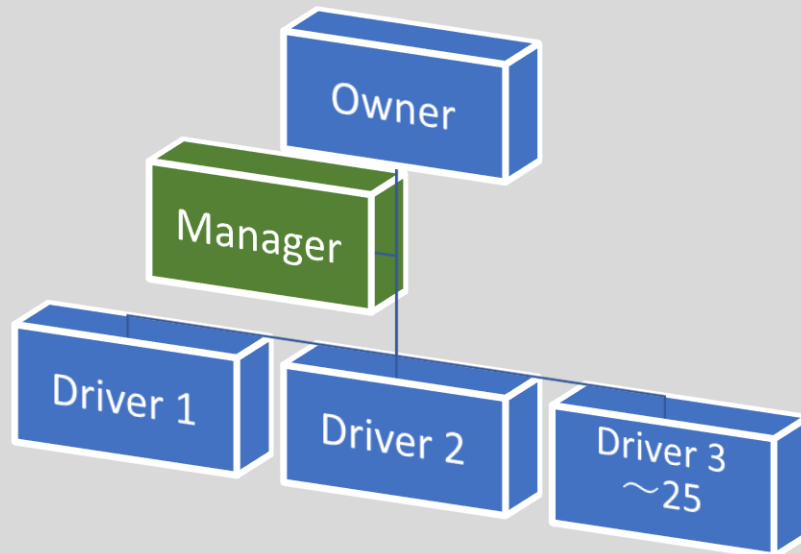
### 1. Collect (Driving data)　　2. Analyze　　3. Transform (Messages & other)

# The message system can assist transportation managers



**Japanese transport company**



**Obligation to assign an operation manager**

One manager must manage 25 people (maximum).

Daily **safety and energy conservation training** is also required.



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**Conversion flow**
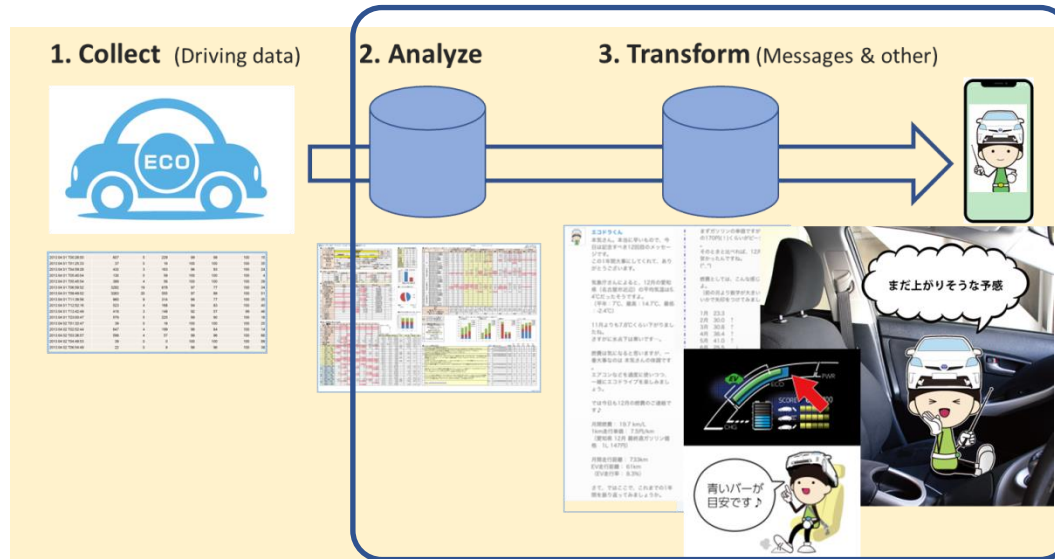


**The area worth developing roles of human, while generalizing**

How to look at the data

How to improve it

**How to tell the facts we know**

**Think and express for others**

This could be useful even in countries that don't have a management system or training structure.

# 3. Generalizing

- **Solving Problems in the Transportation Industry through Open Innovation**

    Transportation companies with variety of issues and companies with variety of technologies/services collaborate to solve industry problems/realize Digital Transformation.

    We will contribute to the industry and society by transformation of the transportation industry into a safe, secure, and ecological social infrastructure.

- **Features of TDBC**

    ・Members (as of the end of October): 150 companies from freight (trucks and dump trucks), passenger (taxis and buses), ICT, vehicle, and in-vehicle equipment manufacturers, health care, consulting, etc.

    ・Organize and share issues common to all businesses, hypothesize solutions, conduct demonstrative experiments, evaluate and improve, and realize them in working groups for each theme.
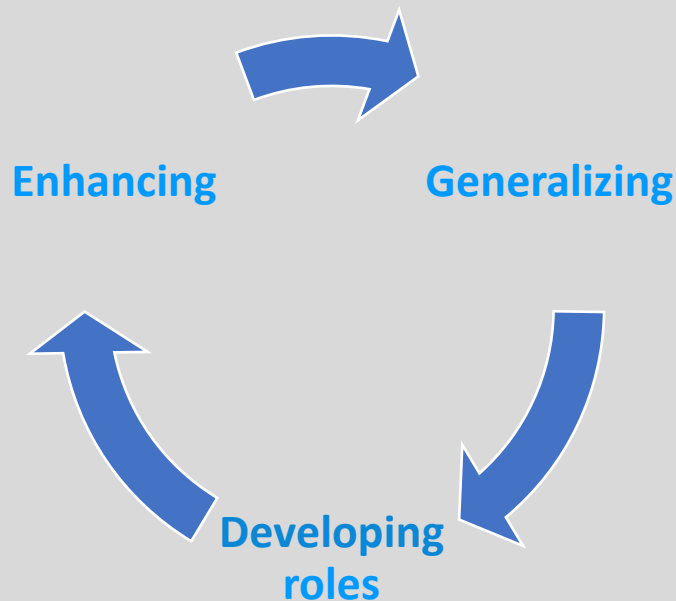
**BAYLINE EXPRESS Inc.**



Camera

Sensor

Collection of driving data

## ■ Points

1) **Real-time** driving data collection

2) Training tailored to **the characteristics of each driver**

3) **Maximum** utilization of data

1. **Developing roles** of human

2. **Enhancing** with technology

3. **Generalizing**

動機を動かせ。明日を動かせ。