

# Study of Predictive Maintenance & Detectors Data Analysis

## Diploma in Engineering Systems (DES)

### LAND TRANSPORT AUTHORITY – EXPRESSWAY MONITORING & ADVISORY SYSTEM (EMAS)

#### STUDY OF PREDICTIVE MAINTENANCE

##### Introduction

EMAS maintenance team is currently using two maintenance methods, they are:

- **Preventive Maintenance:** Service or replace equipment according to the suggested schedule,
- **Corrective Maintenance:** Service or replace equipment after it fails.

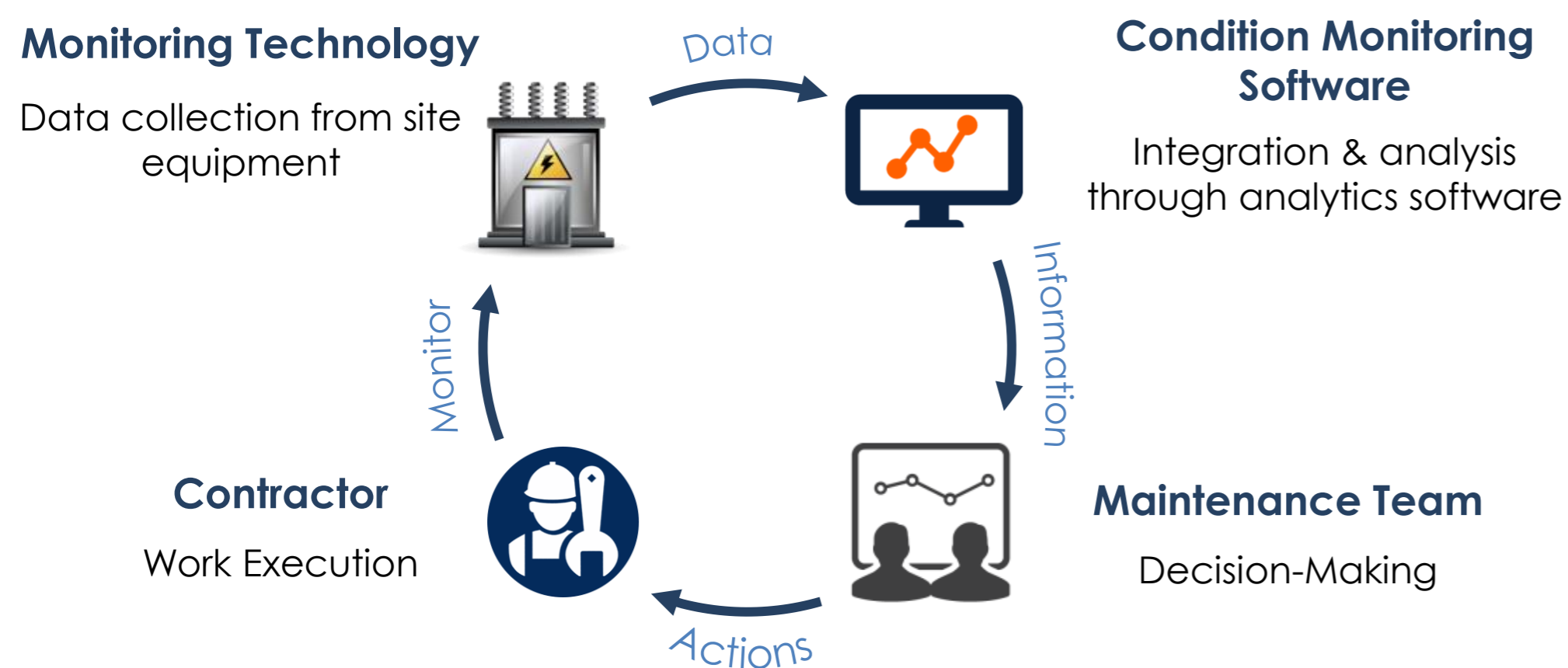
##### Objective

To explore an alternative maintenance method to complement existing maintenance system in EMAS.

##### Predictive Maintenance (PdM)

- Condition-driven preventive maintenance program
- Predict when equipment failure might occur
- Allows planned maintenance before the failure occurs

##### How it works?



##### Benefits of PdM

###### REDUCE

Unnecessary damage equipment

High priority and unscheduled work

Total cost of maintenance

Total labor needed

###### INCREASE

**SAFETY**

Safety of employee

Efficiency of employee time

#### DETECTORS DATA ANALYSIS

##### Introduction

Detectors are equipment used in EMAS. They are used to detect volume, speed, classification of vehicles and incidents on the expressways.

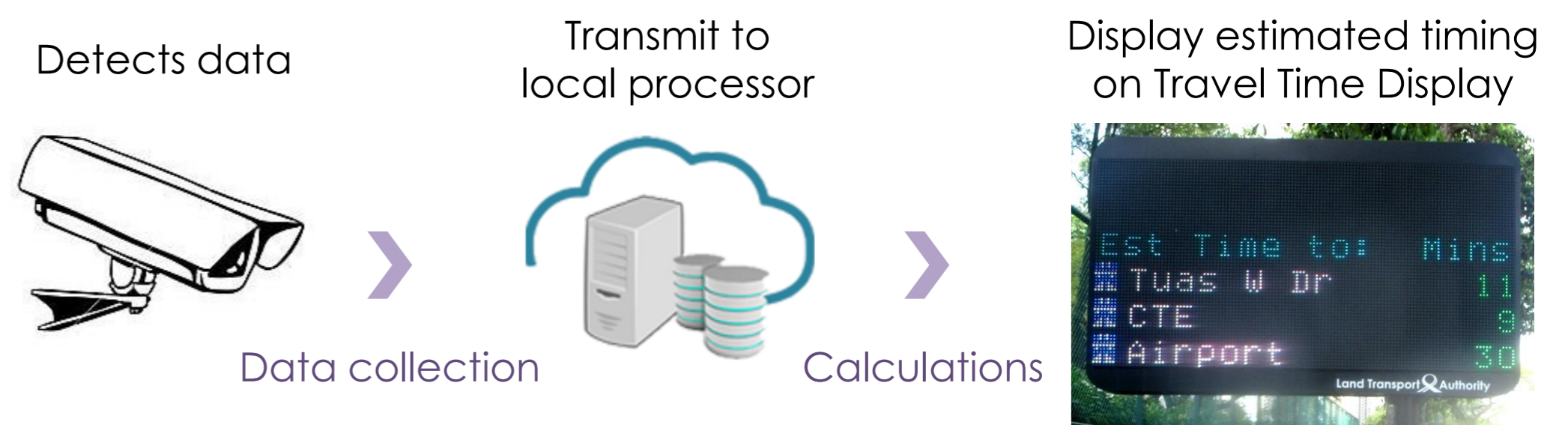
##### Objective

To study the detectors data analysis. Data analysis is being observed and evaluated to identify the root cause of abnormal data.

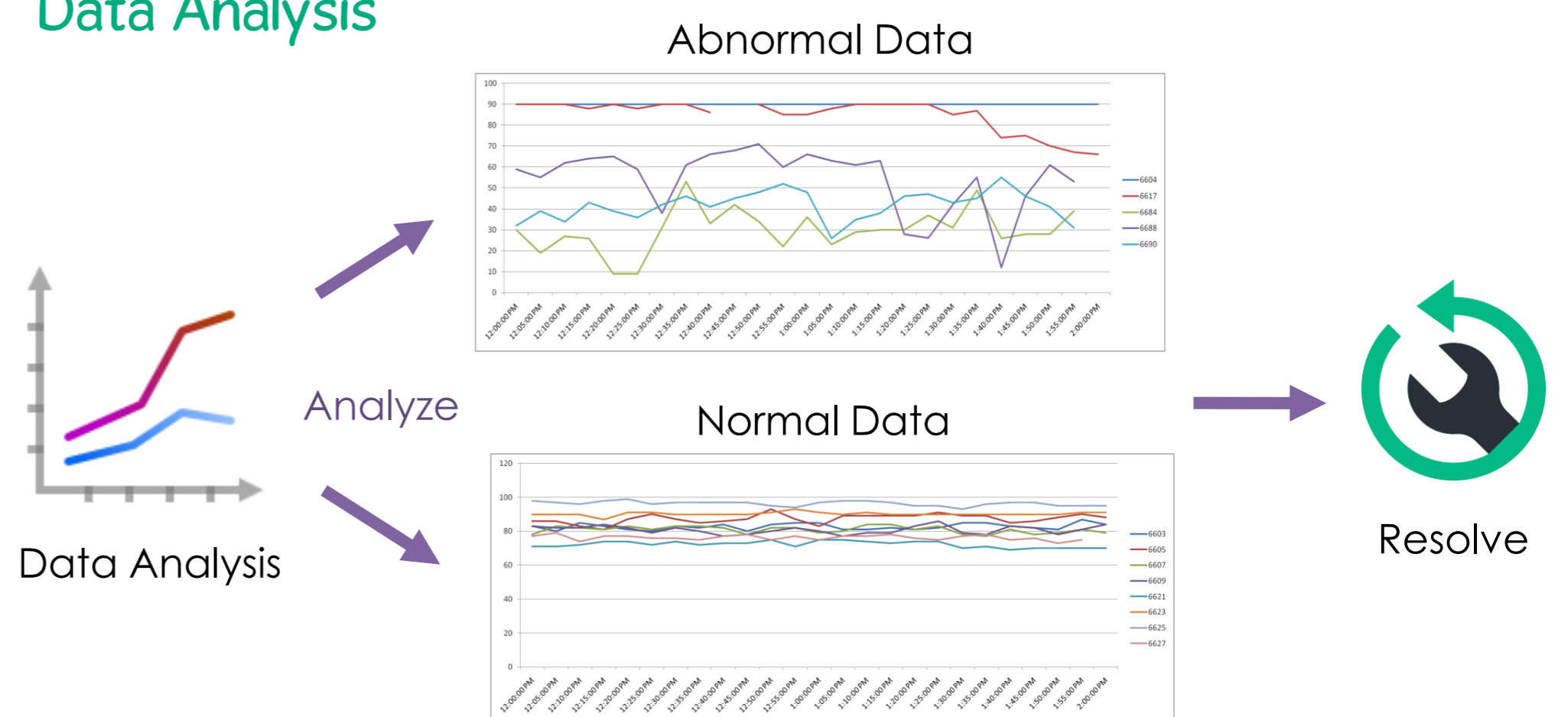
##### Detectors Data Analysis

- An analysis of detectors data which collected from the backend equipment
- To ensure the operating condition of detection cameras on each expressway.

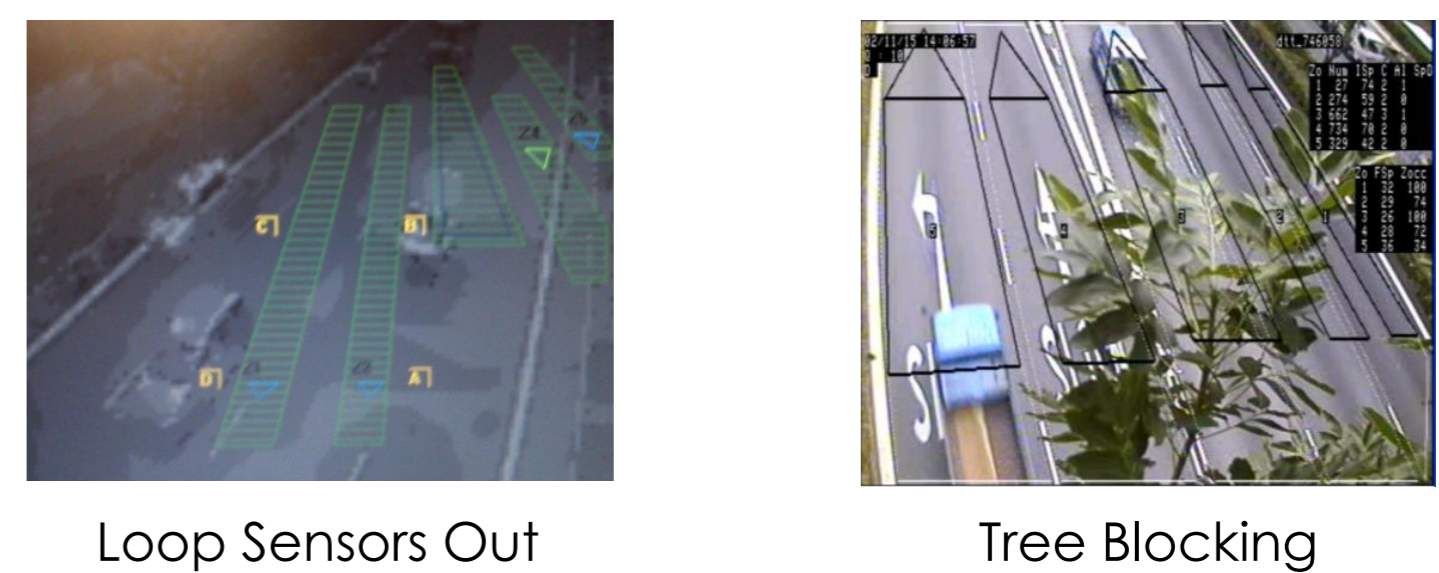
##### How detector works?



##### Data Analysis



##### Causes for Abnormal Data



##### Solutions

