

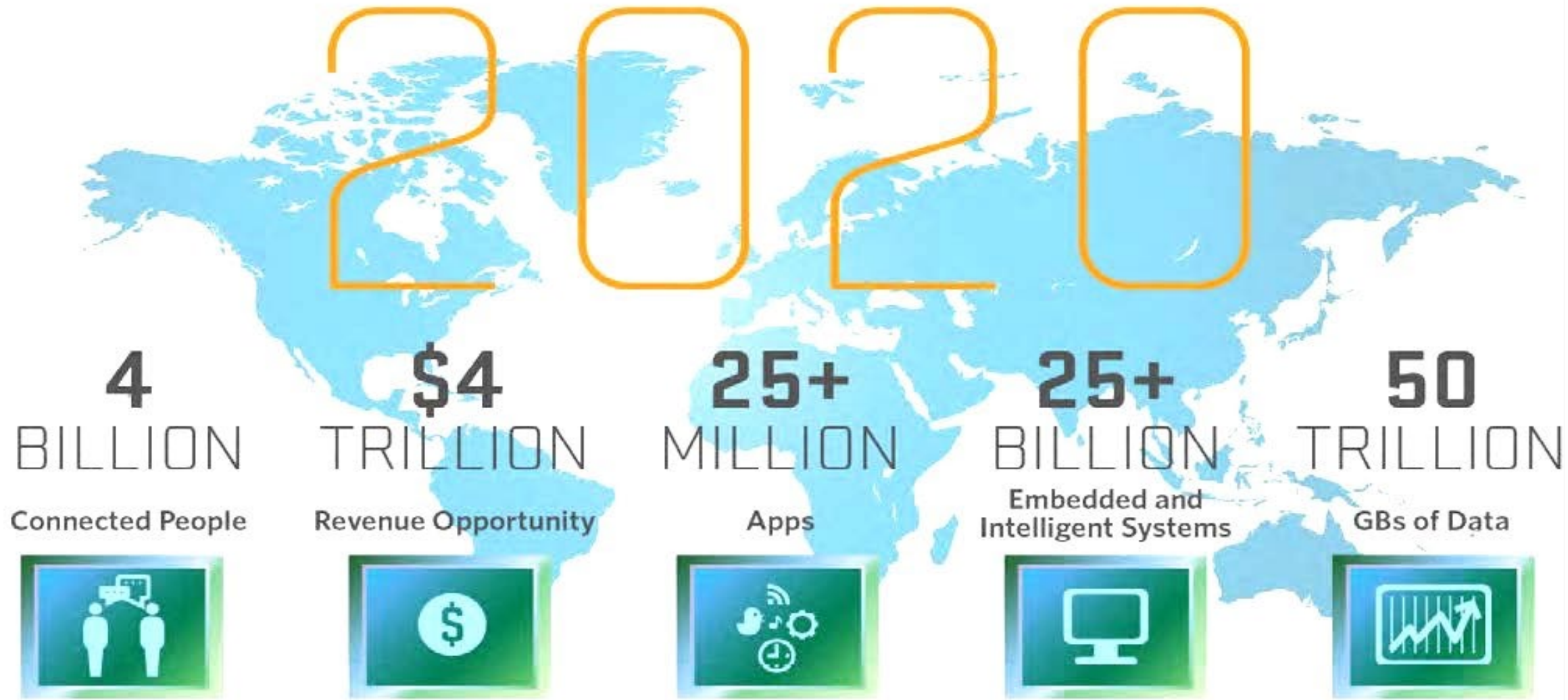


DIREKTORAT JENDERAL  
**BINA MARGA**  
KEMENTERIAN PEKERJAAN UMUM DAN  
PERUMAHAN RAKYAT

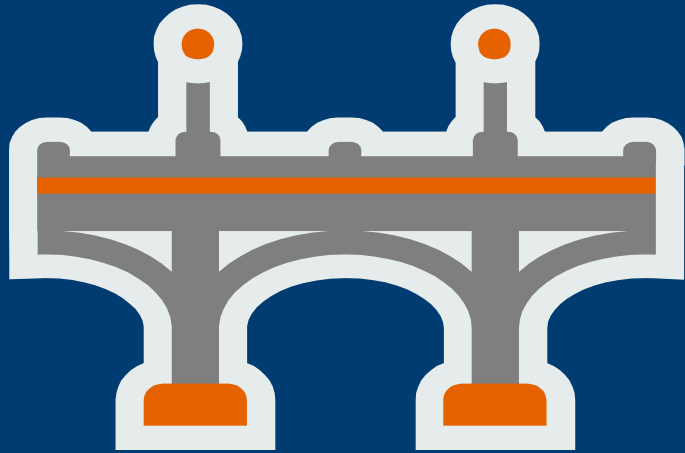


# LOCATION ANALYTICS DAN INTERNET OF THINGS UNTUK JALAN DAN JEMBATAN

# Prediksi Internet of Things di Dunia 2020



# Jalan dan Jembatan Nasional di Indonesia dan IoT



27.382  
Jembatan

Pengelolaan



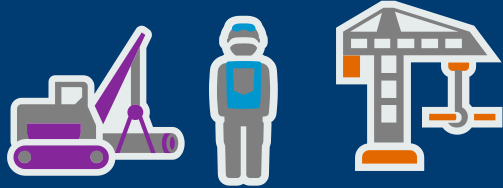
47.017 Km  
Jalan

Pengelolaan



# Konsep IoT untuk Jalan dan Jembatan

## System of Record



Konstruksi



Sensor, Survey, dan Inspeksi



Laporan Masyarakat



CCTV



Drone

BPS, BMKG, Polisi,  
Kemenhub, BNPB, dll

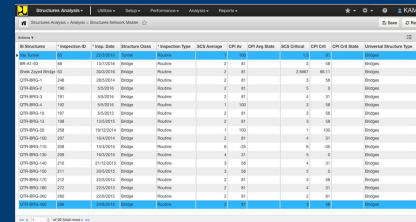
## System of Insight



Call and  
Information  
Center



Analysis Center

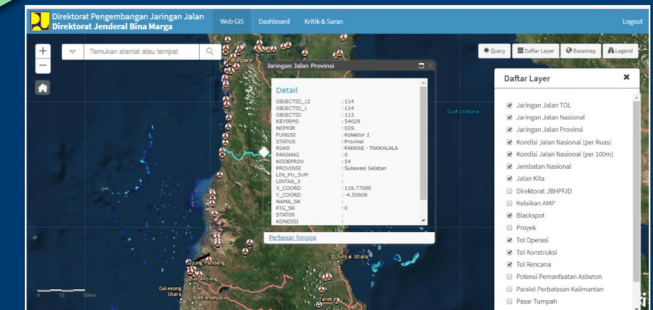


No	Identifikasi	Tempat	Spesifikasi	Spesifikasi	Spesifikasi	Spesifikasi	Spesifikasi	Spesifikasi	Spesifikasi	Spesifikasi
1	101-001	101-001	101-001	101-001	101-001	101-001	101-001	101-001	101-001	101-001
2	101-002	101-002	101-002	101-002	101-002	101-002	101-002	101-002	101-002	101-002
3	101-003	101-003	101-003	101-003	101-003	101-003	101-003	101-003	101-003	101-003
4	101-004	101-004	101-004	101-004	101-004	101-004	101-004	101-004	101-004	101-004
5	101-005	101-005	101-005	101-005	101-005	101-005	101-005	101-005	101-005	101-005
6	101-006	101-006	101-006	101-006	101-006	101-006	101-006	101-006	101-006	101-006
7	101-007	101-007	101-007	101-007	101-007	101-007	101-007	101-007	101-007	101-007
8	101-008	101-008	101-008	101-008	101-008	101-008	101-008	101-008	101-008	101-008
9	101-009	101-009	101-009	101-009	101-009	101-009	101-009	101-009	101-009	101-009
10	101-010	101-010	101-010	101-010	101-010	101-010	101-010	101-010	101-010	101-010

## System of Engagement



Planning and  
Programming



# IoT untuk Pengelolaan Jalan dan Jembatan saat ini

1. IRMSV3
2. RAMS
3. ArcGIS
4. PRIMS
5. E-Planning

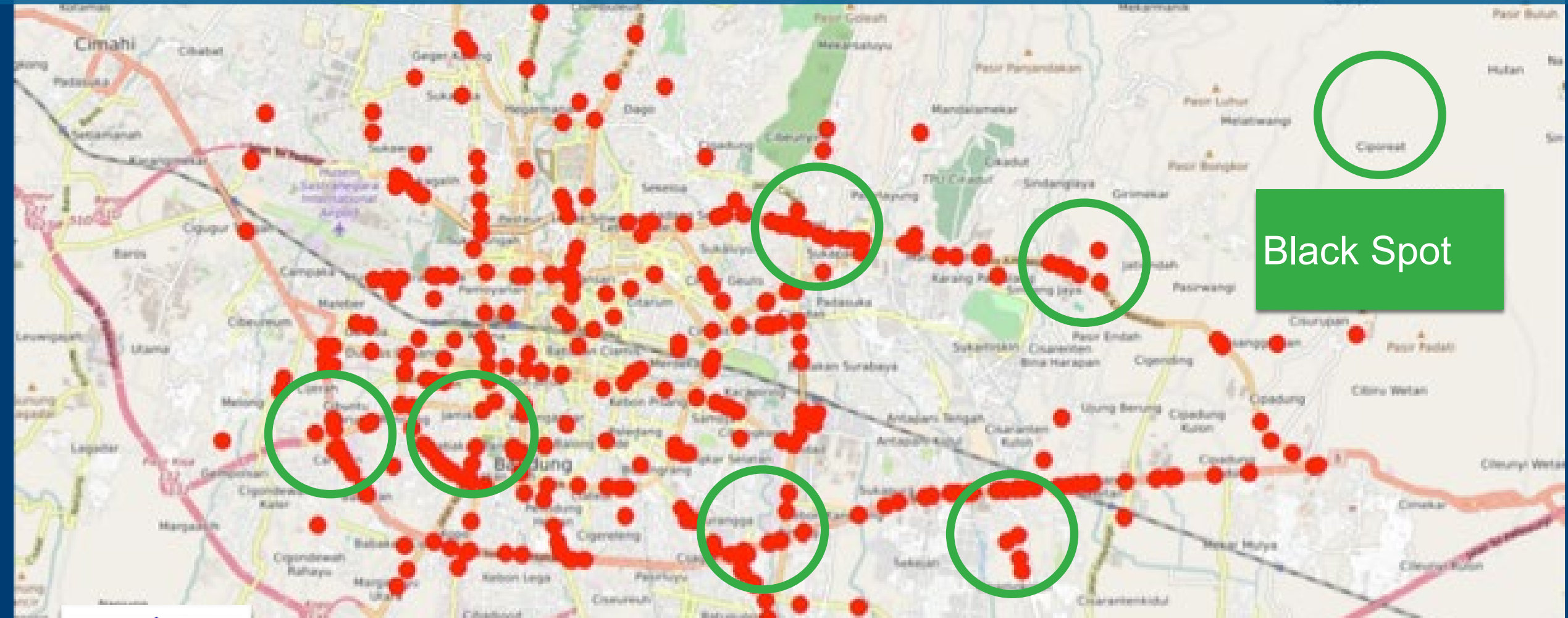


1. CADD Software
2. Quantum Trimble
3. SAP
4. Plaxis
5. SIM-Pembebasan Lahan

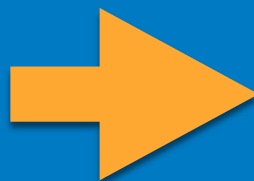
1. Jalan Kita
2. Inslope
3. INVI J
4. Wim Bridge
5. Plato

1. SIPP
2. SIM Pembebasan Lahan
3. Remote Monitoring
4. E-Pengawasan

# Integrasi Data dengan Institusi Lain

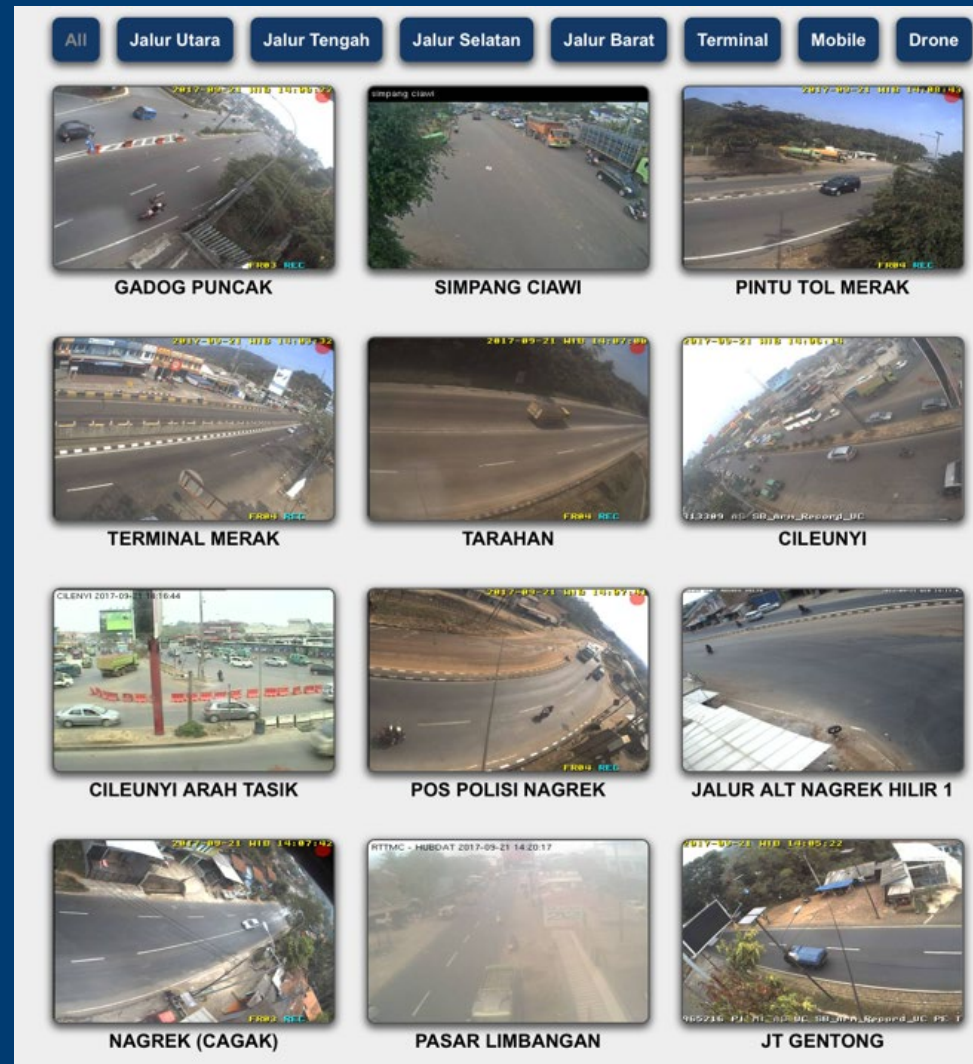


Data  
Kecelakaan

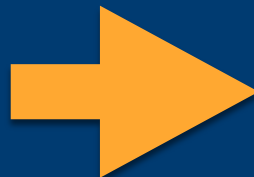


**MEMBANTU BINA MARGA UNTUK MENENTUKAN:**  
1. APAKAH PERLU DIBUAT JEMBATAN PENYEBRANGAN?  
2. APAKAH PERLU PERBAIKAN TROTOAR?  
3. DLL

# Integrasi Data dengan Institusi Lain

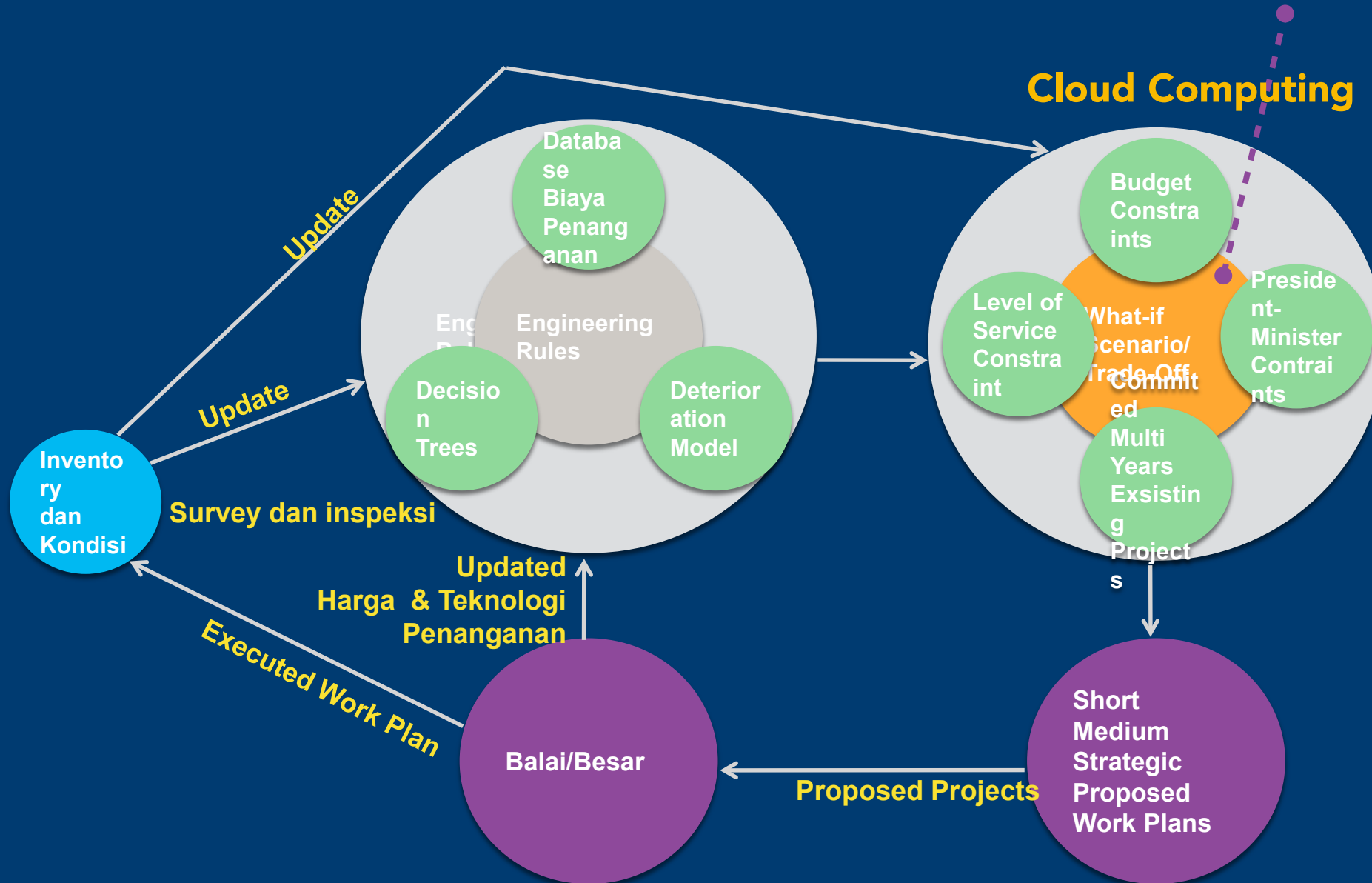


CCTV



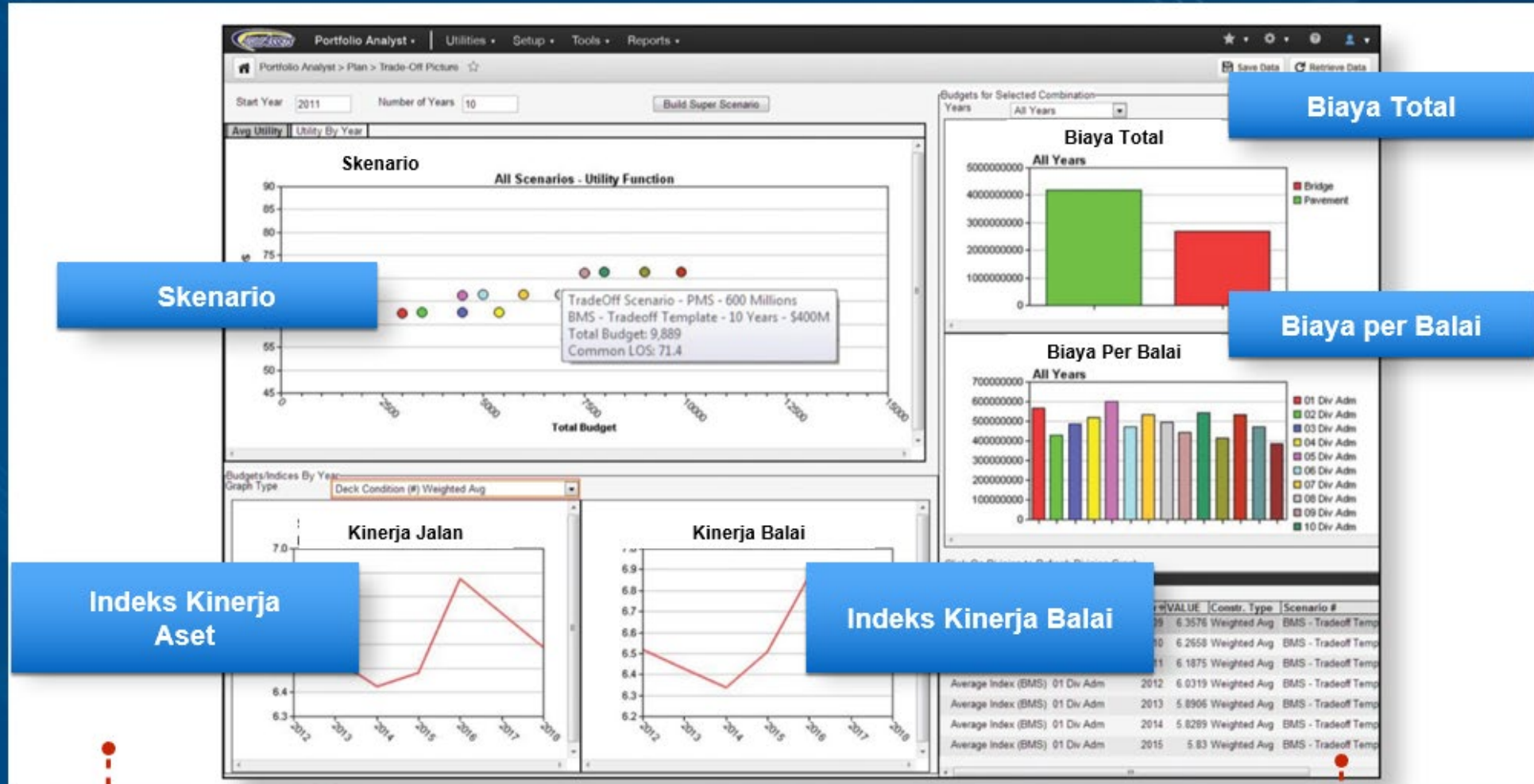
MEMBANTU MEMANTAU KEMACETAN JALAN DAN  
MANAJEMEN KONSTRUKSI

# Cloud Computing Trade-Off/What if Scenario





# Cloud Computing Trade-Off/What if Scenario



Perhitungan dan analisis dilakukan secara cloud computing

Transparansi  
Akuntabilitas  
Cepat  
Berbasis Kinerja

# IRMS Project

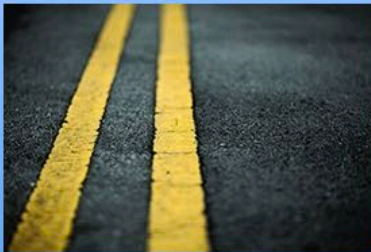
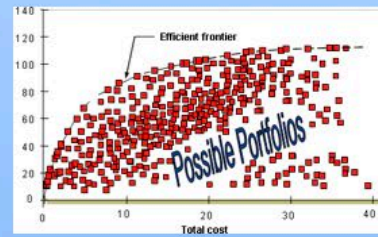


## IRMS Project

**AgileAssets  
Integrated Asset  
Management  
System**



### Portfolio



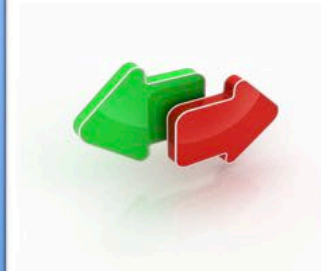
Pavement  
Management  
System



Bridge  
Management  
System



Safety  
Management  
System



**ArcGIS**

# Simulation



# Simulation

ADMIN



## Dashboard

Dashboard

ADMIN  
Online



Dashboard

Settings

Threshold and Properties

Sensors

ACCELEROMETER

ANEMOMETER BIAXIAL

ANEMOMETER TRIAXIAL

ATRH

LOAD CELL

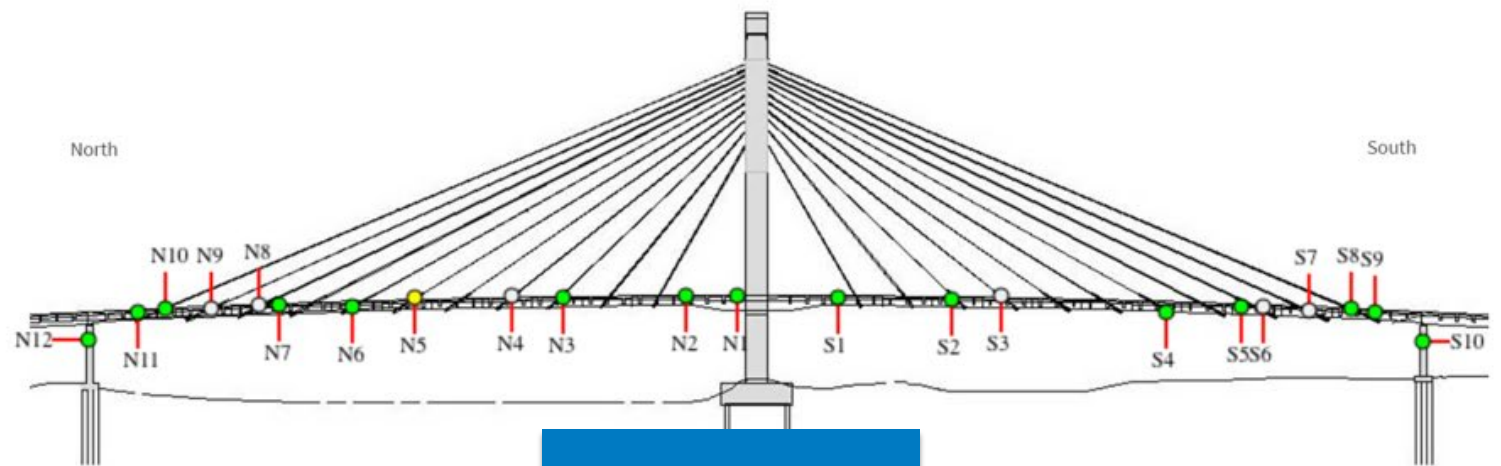
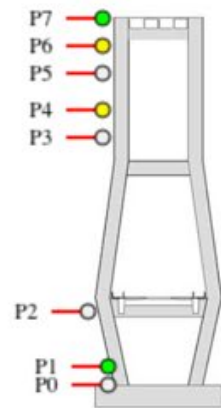
SEISMIC

STRAIN TRANSDUCER

TEMPERATURE

TILTMETER

### Main View



Posisi Sensor

Sensor  
Terpasang

Real Time

# Sensor :SINDILA

Cari lokasi SINDILA



Daftar Lokasi SINDILA

## Kondisi Lalu Lintas PUSJATAN SINDILA-PLATO

Kamera - 14

### Arah Ujung Berung

Lancar

18-09-2017 11:56:34



ARUS KENDARAAN

1170 SMP/Jam



KECEPATAN RATA-RATA

73 Km/h

### Gambar Kondisi Jalan



18-09-2017 11:56:34

Image Processing

### Arah Gasibu / Cicaheum

Lancar

18-09-2017 11:56:34



ARUS KENDARAAN

1035 SMP/Jam



KECEPATAN RATA-RATA

63 Km/h

Variable Message Sign

Volume Lalu Lintas


Kecepatan Rata-Rata

Real Time

# Dashboard Real Time Monitoring - CCTV

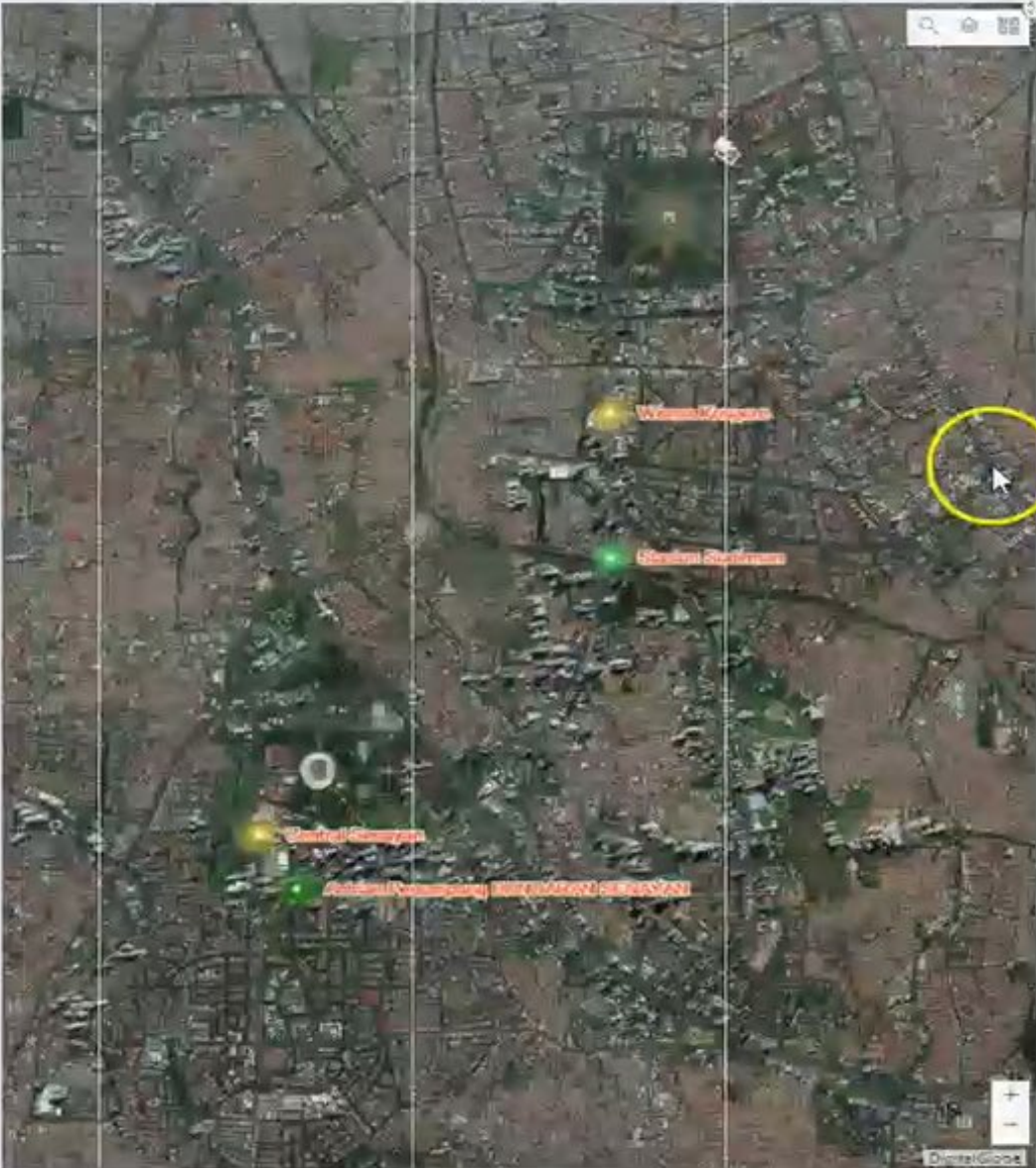
Smart CCTV Monitoring  
Object detection and counting using machine learning algorithm.

1 of 4  
Wisma Kasgura



www.bit-teknologi.com

1 of 2  
JL. Mohammad Husni Thamrin




4  
CCTV Online

Majority Detected

- None
- bicycle
- bus
- car
- motorcycle
- person
- train
- truck

Detection Statistics



Vehicle Type	Count
person	1
car	7
motorcycle	0
truck	0
train	0

View Video

Person: 1  
Car: 7  
Bus: 0  
Bicycle: 0  
Motorcycle: 0  
Truck: 0  
Train: 0

# Sensor: Wim-Bridge

SIWIM-M

Status (**online**)

Settings

Filters

Add Measurement

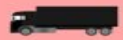


🕒 10:22:18  
🚛 113 (102)

📦 78.8 t (71.4 %)  
🚗 31.0 km/h

⚠️ 2  
⚠️ [MP]

Overload



🕒 10:21:54  
🚛 12 (51)

📦 35.7 t (49.0 %)  
🚗 30.2 km/h

⚠️ 1

Real Time



🕒 10:21:50  
🚛 113 (102)

📦 78.3 t (70.2 %)  
🚗 31.0 km/h

⚠️ 1



🕒 10:21:09  
🚛 13 (140)

📦 20.7 t  
🚗 44.4 km/h

⚠️ 2

Beban  
Kendaraan



🕒 10:20:18  
🚛 1111 (61)

📦 22.6 t  
🚗 41.7 km/h

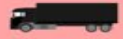
⚠️ 2



🕒 10:19:54  
🚛 11 (41)

📦 34.2 t (113.6 %)  
🚗 35.6 km/h

⚠️ 2



🕒 10:19:27  
🚛 12 (51)

📦 29.9 t (24.4 %)  
🚗 42.9 km/h

⚠️ 2



🕒 10:19:20  
🚛 112 (62)

📦 37.7 t (4.7 %)  
🚗 47.6 km/h

⚠️ 2



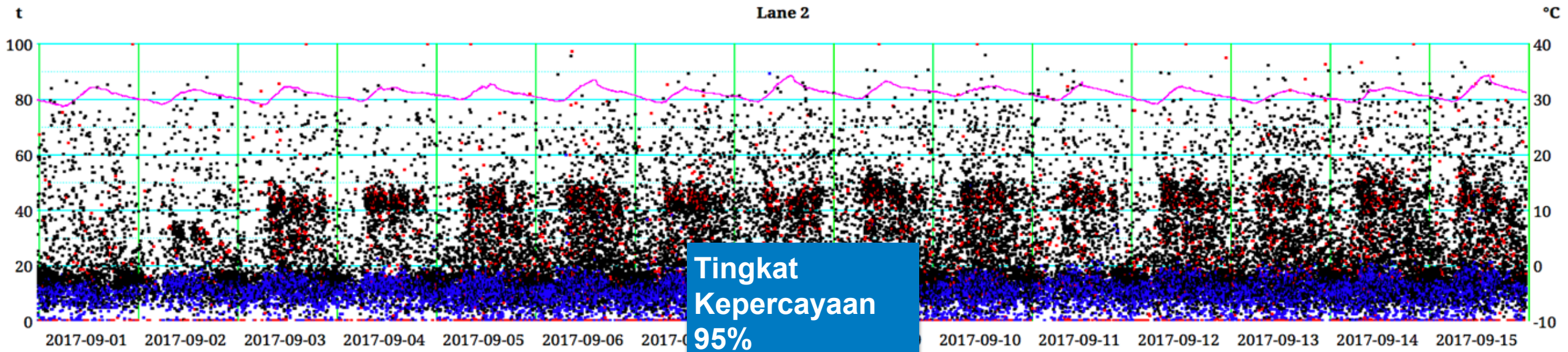
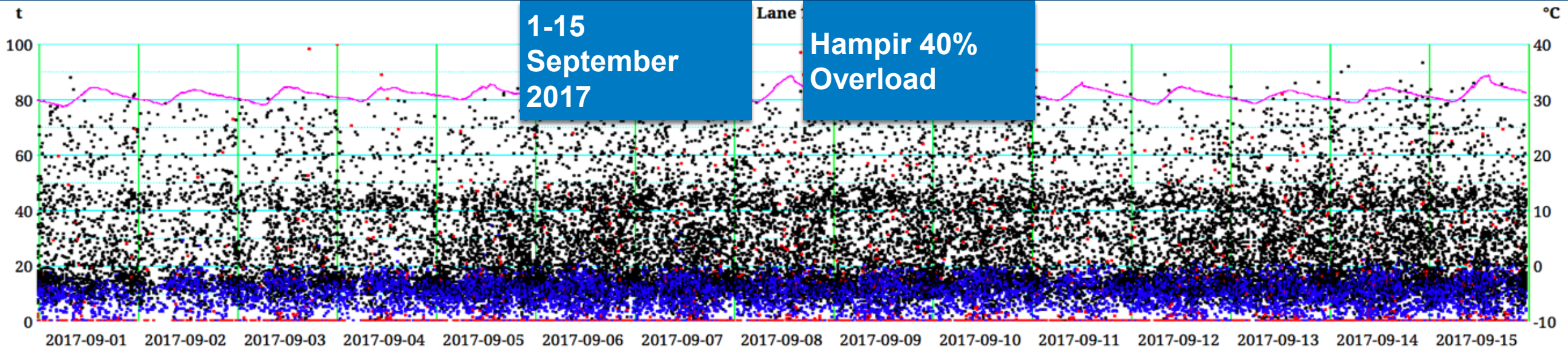
🕒 10:19:20  
📦 37.7 t (4.7 %)  
🚛 112 (62)  
→ Semarang  
📦 3.6 t -- 11.7 t -- 11.2 t --  
📏 3.4 m -- 4.1 m -- 1.3 m

Beban Sumbu

Foto  
Kendaraan

Menggunakan Jembatan  
Sebagai Timbangan  
dan diakses melalui Internet

# System of Insight : Wim-Bridge





# Sensor: Aplikasi Jalan Kita

**JALAN KITA**  
Mewujudkan Jalan Yang Lebih Baik

Beranda History Bantuan Kritik&Saran Unduh Login

Map Satellite

**Lokasi Pelaporan**

**Dashboard**

Home > Dashboard

**Informasi**

2961 Total Informasi	0 Belum Diteruskan	2291 Diteruskan
423 Belum Direspon	1209 Sudah Direspon	

**Twitter**

28 Total Tweet	24 Belum Diteruskan	1 Diteruskan
-------------------	------------------------	-----------------

**Dashboard  
Penilaian  
Respon**

9:23 AM 66%

Jalan Kita

pusjatan.pu.go.id

Kategori Informasi

- Kemacetan Lalin
- Kecelakaan
- Genangan Air
- Jalan Rusak

Ambil Foto

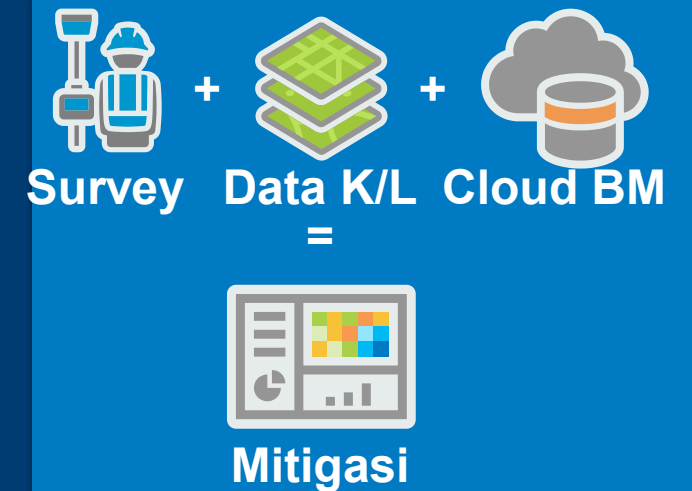
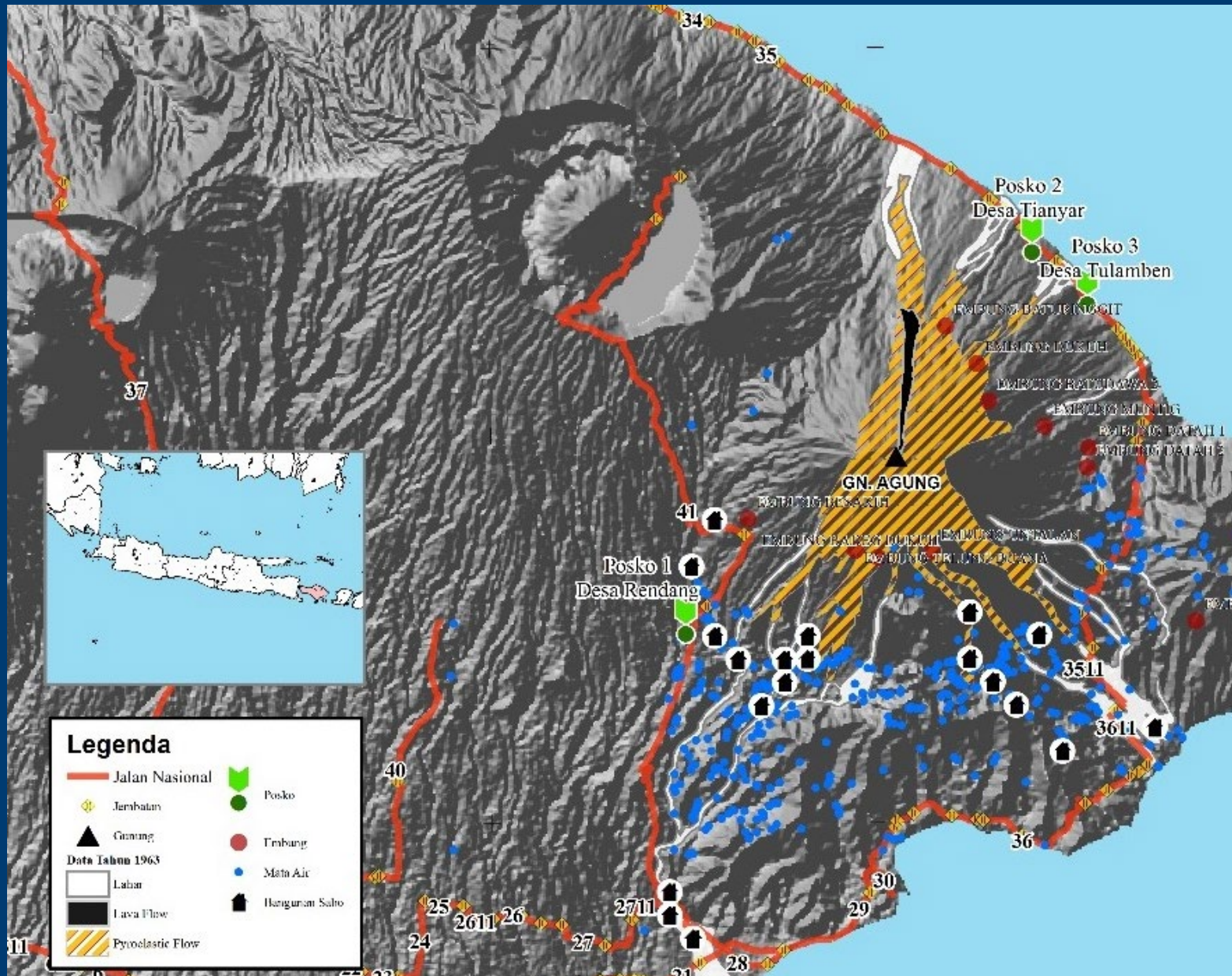
Lokasi

Detail

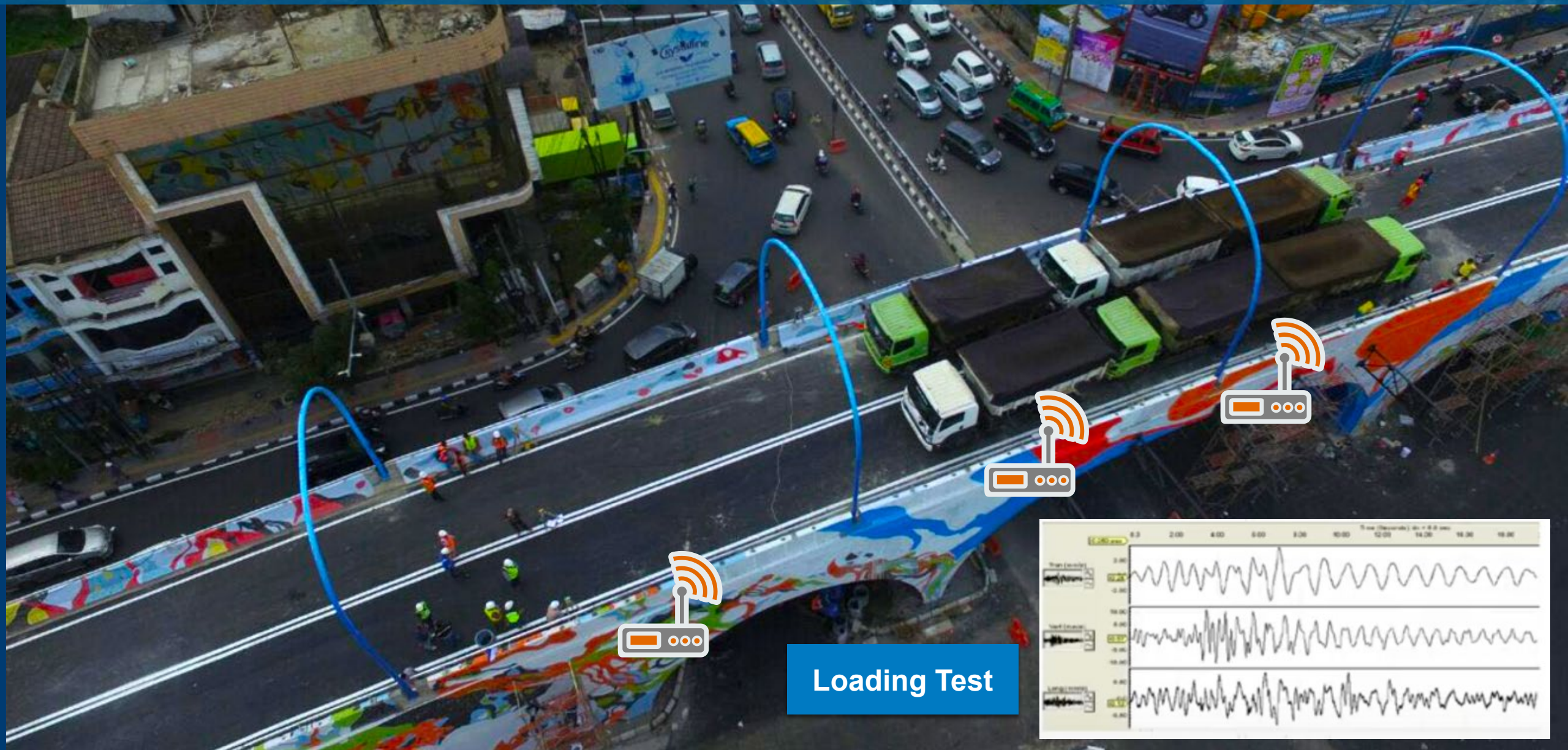
**GET IT ON Google Play**

**Download on the App Store**

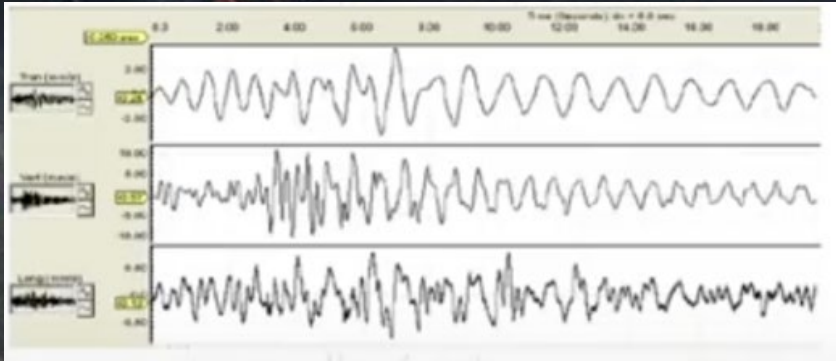
# System of Insight: Siaga Bencana



# Monitoring Saat Konstruksi



Loading Test





Terima Kasih