

Robotics & AI  
for **Resilience** Diagnostics

# SOTERIA 8



[www.soteria8.com](http://www.soteria8.com)

OCTOBER 2023



# Robotics & AI

## to maintain aging cities against natural disasters

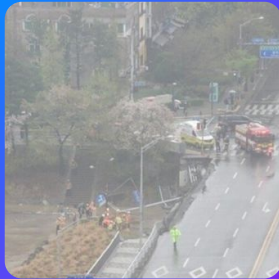
Soteria8 is here **to save people's lives**  
and secure **cities' sustainability**  
in response to climate change



**+\$200 Bil.**  
**damages in 2022**

# Infrastructure Problems in Japan

***Aging infrastructures*** built in 1970s and 1980s ***in DANGER***



**Aging roads  
& bridges**

**+50** years old



**Weakened  
seawalls**

**-30%** Lifespan



**Building  
collapses**

**- \$300M** Loss



**Unexpected  
failures**

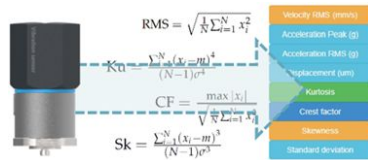
**+20%** Stops

# Solution

## *Robotics and AI platform can detect signs of risk*

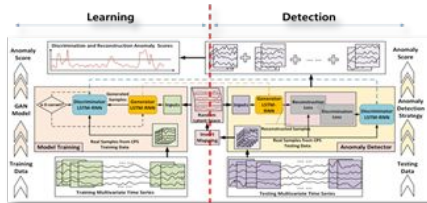
### Robotics

**Collecting** vision & vibration data from infrastructures



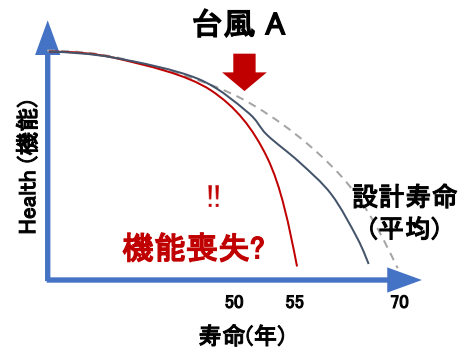
### AI

**Analyzing** vision and patterns to discover abnormal data sequences



### Diagnostics

**Visualizing** resilience risk caused by natural disaster



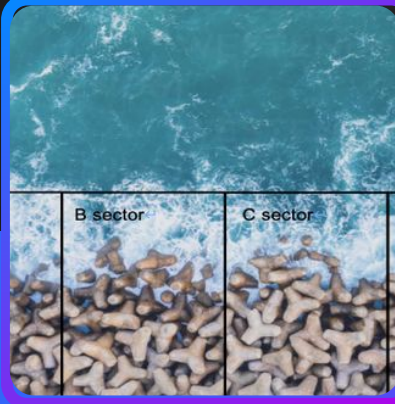
## Infrastructure



- Drone, robot, IoT
- Track concrete cracks
- x20 speed & +95% of accuracy

**B2G**

## Seawalls



- Drone
- Track shape and cracks
- Show damages after typhoons

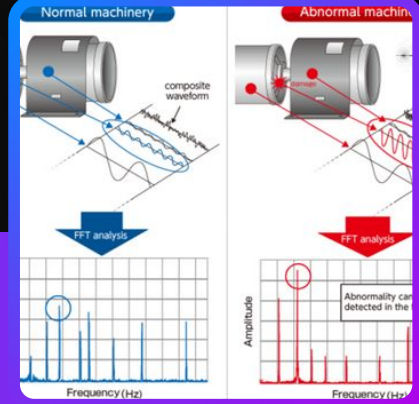
## Buildings



- Drone, robot, IoT
- Track distortion of structures
- Alarms potential collapse

**B2G / B2B**

## Machines



- Vibration IoT
- Detecting potential break down

**B2B**



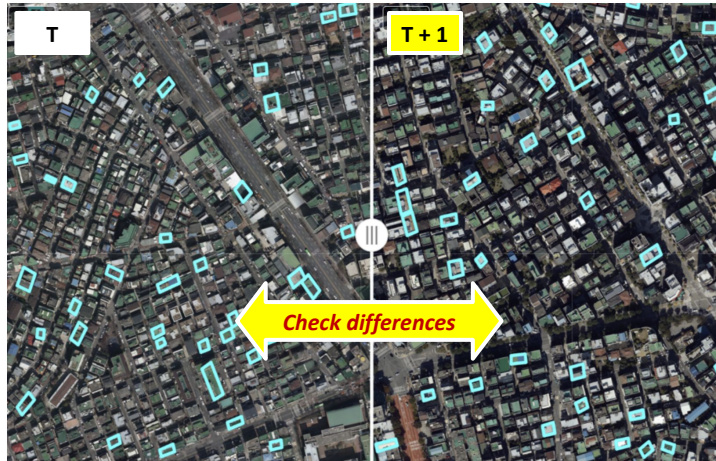
# Infrastructure Resilience

*Sky view recording and track anomalies over time*



**x20 Faster :**

**Walk and see Vs. Flying detection**



排水機場 A

**Surveillance  
on Roof tops,  
facilities**

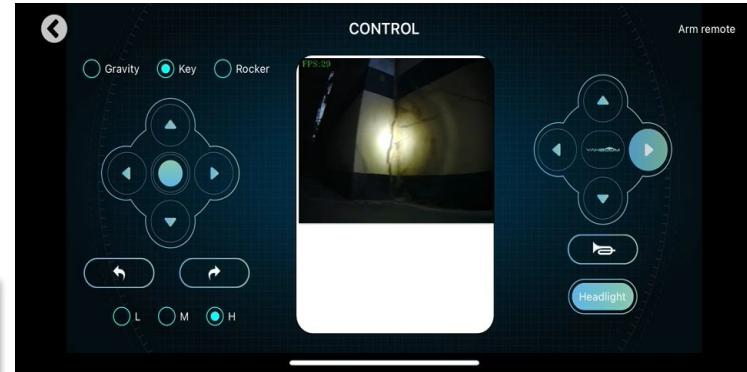
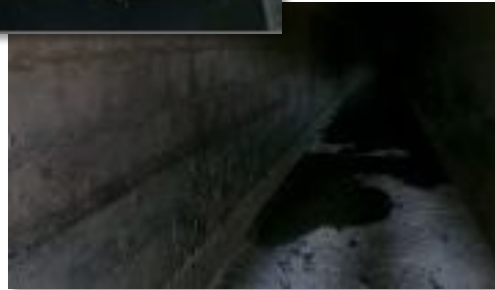
**Check  
cracks,  
pipes,  
ventilations**



排水機場 B

# Infrastructure Resilience

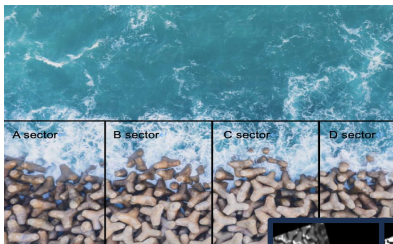
***Remote control and capture cracks***  
in dangerous and dark places



# Seawall Resilience

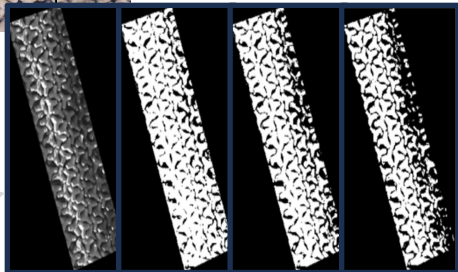


## Macro : Structure



Compare sector to sector in time series

Monitoring empty space, “孔隙率”



## Micro : Cracks



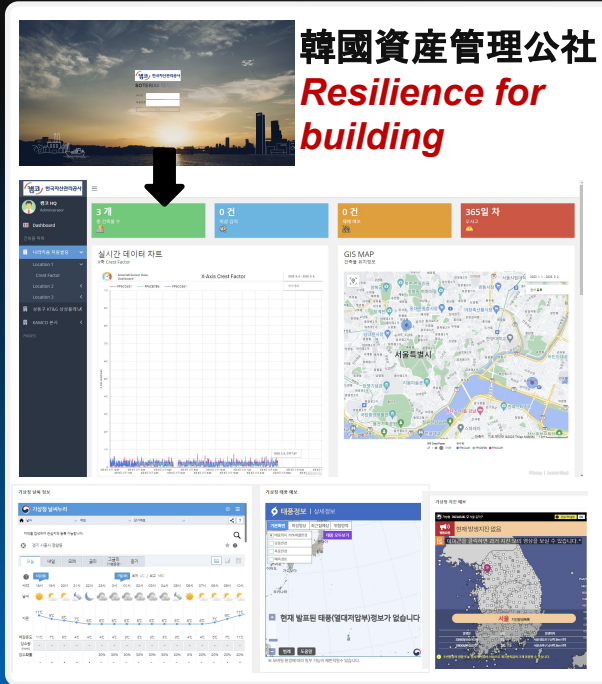
Diagnosis on individual tetrapods





# Traction & Roadmap

## PoC in Korea



## PoC in Japan

### Resilience diagnostics for water pump facility



静岡県



袋井市  
Fukuroi City

天証手集概念図

袋井市市街への叫び



#### 【経済的価値】

スマートメンテナンスにより  
+40年老朽排水機場の寿命延長  
及び運営コスト削減

#### 【社会的価値】

大雨による市街地と農地等への  
水害防止

#### 【環境的価値】

炭素排出を最小限に抑える  
運用条件の発見

Soteria8 Co., Ltd.

12

袋井市  
Fukuroi City

# Team

## CEO



### [Education]



- Masters in  
**Industrial Engineering**

### [Professional Experience]



[Team] Mechatronics engineers

## R&D Partnership



韓國

**KAIST AI**

**KANC**

Korea Advanced Nano Fab Center



Professor JOO  
• Deep learning AI model

• Smart sensor R&D

Professor SONG & JOO  
• AI modeling of ultra-sonic data

• SaaS R&D for mass usage



日本



東京大学  
THE UNIVERSITY OF TOKYO



東京工業大学  
Tokyo Institute of Technology



千葉工業大学  
CHIBA INSTITUTE OF TECHNOLOGY

Professor PARK  
• DX PoC advisory (personal)

Akiba Hideo  
• IoT sensor engineering

Masaru Kokubo  
• APEC, IPEA エンジニア, JABEE 審査委員

# Seeking PoC & Partnerships

**Act NOW :**  
**Contact us**

**Solution is  
available**

**Corporates**

- Monitoring multiple aging facilities and industrial equipment across Japan

**Government**

- Cities with aging infrastructure or lacking infrastructure resilience data

**Open  
Innovation**

- New Biz in disaster prevention sectors
- 建設業 : sales tool for new projects
- 保険業 : help clients to avoid damages

# THANK YOU

## CONTACT

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