



# 最新技術 8K 微米與 Edge-AI 引領環安大數商機

Socionext Taiwan 台灣索思未來科技

# Who is Socionext ?

**Socionext Taiwan** 台灣索思未來科技

Sales&BD Director *Allen Chang*

*allenyh.chang@socionext.com*

# About socionext

**Founded in 2015. We are new,  
innovative enterprise that designs,  
develops and delivers  
System-on-Chip products to  
customers worldwide**



# Company location

Name	Socionext Inc.
Headquarters	Nomura Shin-Yokohama Bldg., 2-10-23 Shin-Yokohama, Kohoku-ku, Yokohama, Kanagawa, 222-0033, Japan
Capital	30.2 billion yen
Start Date	March 1, 2015
Business Description	Design, development, and sales of SoC and solutions/services centering on SoC
Shareholders	Development Bank of Japan, Fujitsu Limited, Panasonic Corporation
Employees	2,700



HeadQuarter,  
Japan,Shin-Yokohama City

Fabless / IDM Logic ASIC Ranking (WW)		
2018 Rank	Company Name	Revenue (\$B)
1	Broadcom	3.8
2	<b>Socionext</b>	<b>0.7</b>
3	MegaChips	0.7
4	Synaptics	0.5
5	Renesas	0.5
6	STMicro	0.4
7	IBM	0.4
8	Marvell	0.3
9	Robert Bosch	0.2
10	Toshiba	0.2
11	ROHM	0.2
12	Honeywell	0.2
13	FocalTech Systems	0.2
14	Samsung	0.1
15	Faraday	0.1

Fabless / IDM Logic IC* Ranking (WW)		
2018 Rank	Company Name	Revenue (\$B)
1	Broadcom	13.9
2	Qualcomm	11.8
3	Intel	10.5
4	Nvidia	10.4
5	MediaTek	5.8
6	HiSilicon	5.2
7	Samsung	3.1
8	AMD	2.2
9	Marvell	1.9
10	Realtek	1.4
11	Tsinghua Unigroup	1.2
12	NXP	1.2
13	Microchip	1.0
14	<b>Socionext</b>	<b>1.0</b>
15	MegaChips	0.9

\*Logic IC : Logic ASIC+Logic ASSP

Source: IHS Markit

**WW No.2 ASIC/ Fabless Supplier !!**

Source: IHS Markit Technology Annual Competitive Landscaping Tool, Q3 2016

**socionext™**

# Make Differentiation with New Technology Chain

@ 2020/05/12

① Windows + Intel  
Solution

Global  
Manufacture

1980~98'  
Assemble  
① Analog → Digital

② System  
Integration  
value  
Supply Chain  
Replay + Re-build

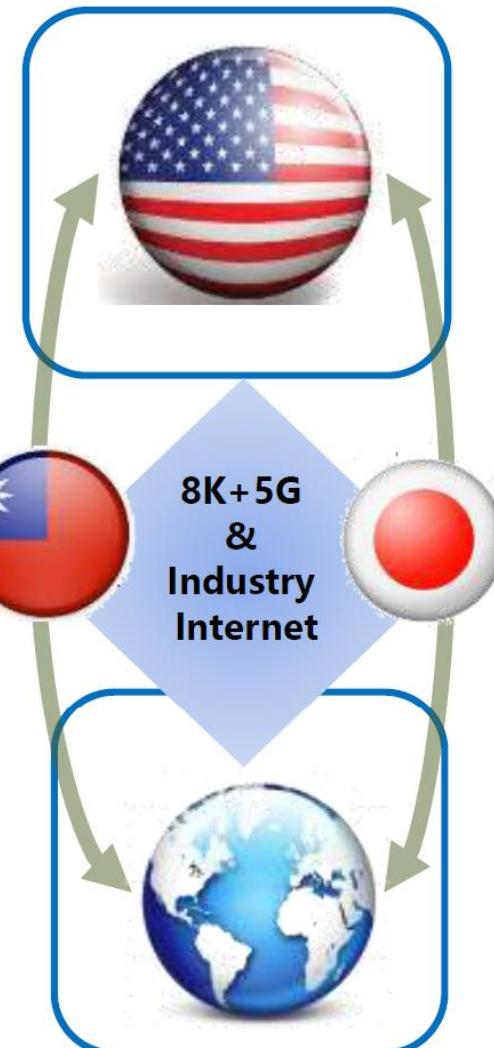
98'-14' ▷ 25"  
Supply Chain  
Management  
② 3C time

③ New Vertical  
Integration  
Technology Chain  
Make new Supply Chain

15' ~ 25'  
Integrated Creation  
Created Integration  
③ New ecosystem  
/ecology

## ◆ New Vertical integration by New Technology

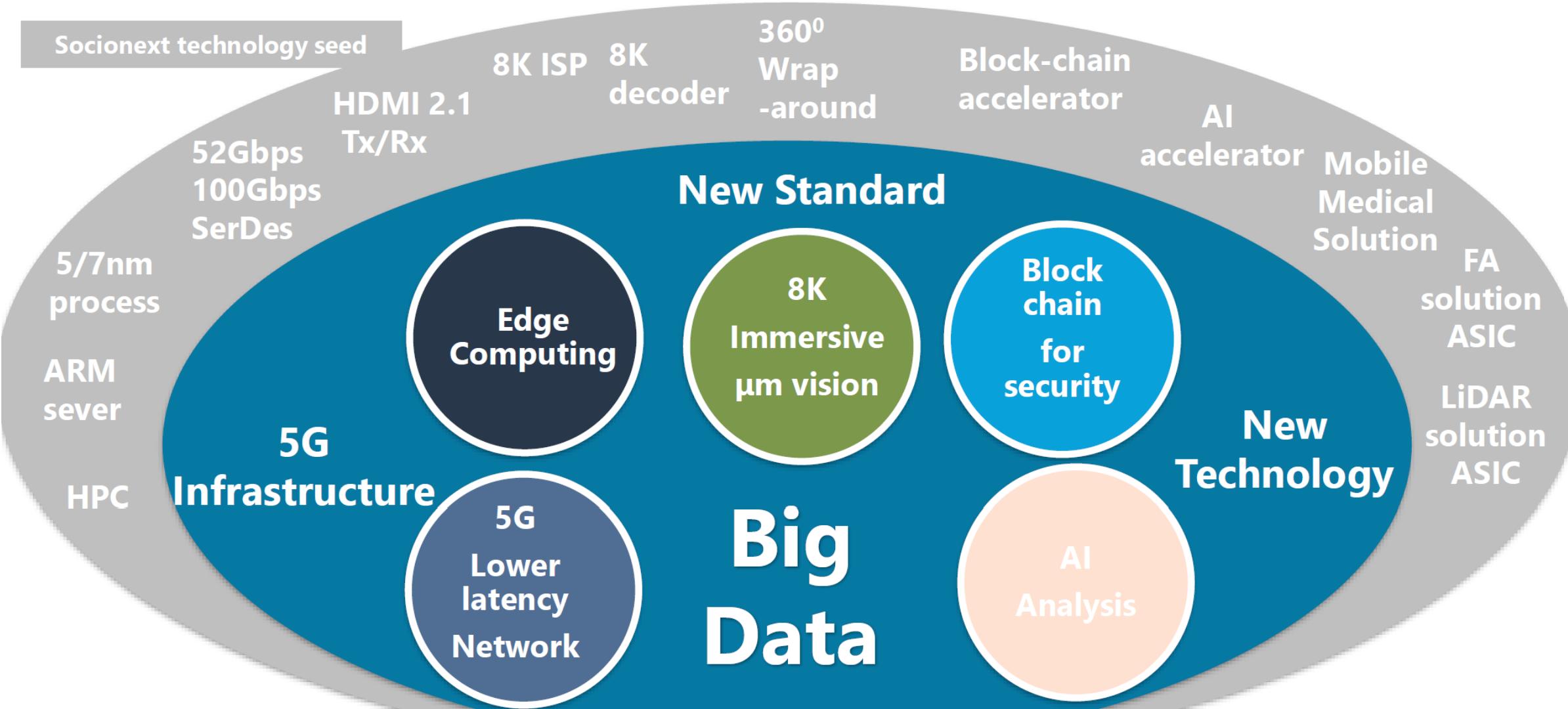
- 1) Deep Vertical integration with IP and semiconductor level.
- 2.) Make differentiation value and competition.



# Applications and Market Records



# Core Technology Supply Chain “芯” 技術供應鏈創造差異化價值



# 8K ecosystem Experience & Expertise

Imaging & Video: Rich Experience in Wide Range of Technologies



**Milbeaut**

By Fujitsu

**Camera  
Encoder/Decoder**

**Broadcasting  
Encoder**

Compact Camera ('00)    35mm full size compact ('12)

DSLR Camera ('03)

Action Camera ('17)

Technology

*JPEG movie*

*8Mpixs*

*Anti-shake*

*Night view*

*High-speed  
shooting*

*H.264/265*

*30Mpixs  
AI engine*

**Camera  
Solution**



**UniPhier**

By Panasonic

**Blu-ray Disk  
Encoder/Decoder**

**Digital TV  
SoC**

Digital TV ('00)    Blu-ray Recorder ('07)    4K Recorder ('14)

DVD Recorder ('05)    4K DTV ('11)

8K DTV ('17)

Technology

*MPEG-2*

*Full HD*

*1080*

*H.264*

*4K*

*HDR*

*H.265*

*8K*

*HDR*

2000

2010

2015

**Encoder/  
Decoder  
Solution**



**Video  
Solution**

# 8K imaging /Video computing –Big Data

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for better quality of experience

## Video Technology One Stop Solution



# 4K8K

Camera → Encode → Transcode → Decode → Display

## 4K·8K Ready!!

Recording, Playing, Streaming



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# 8K + 5G 虛實整合



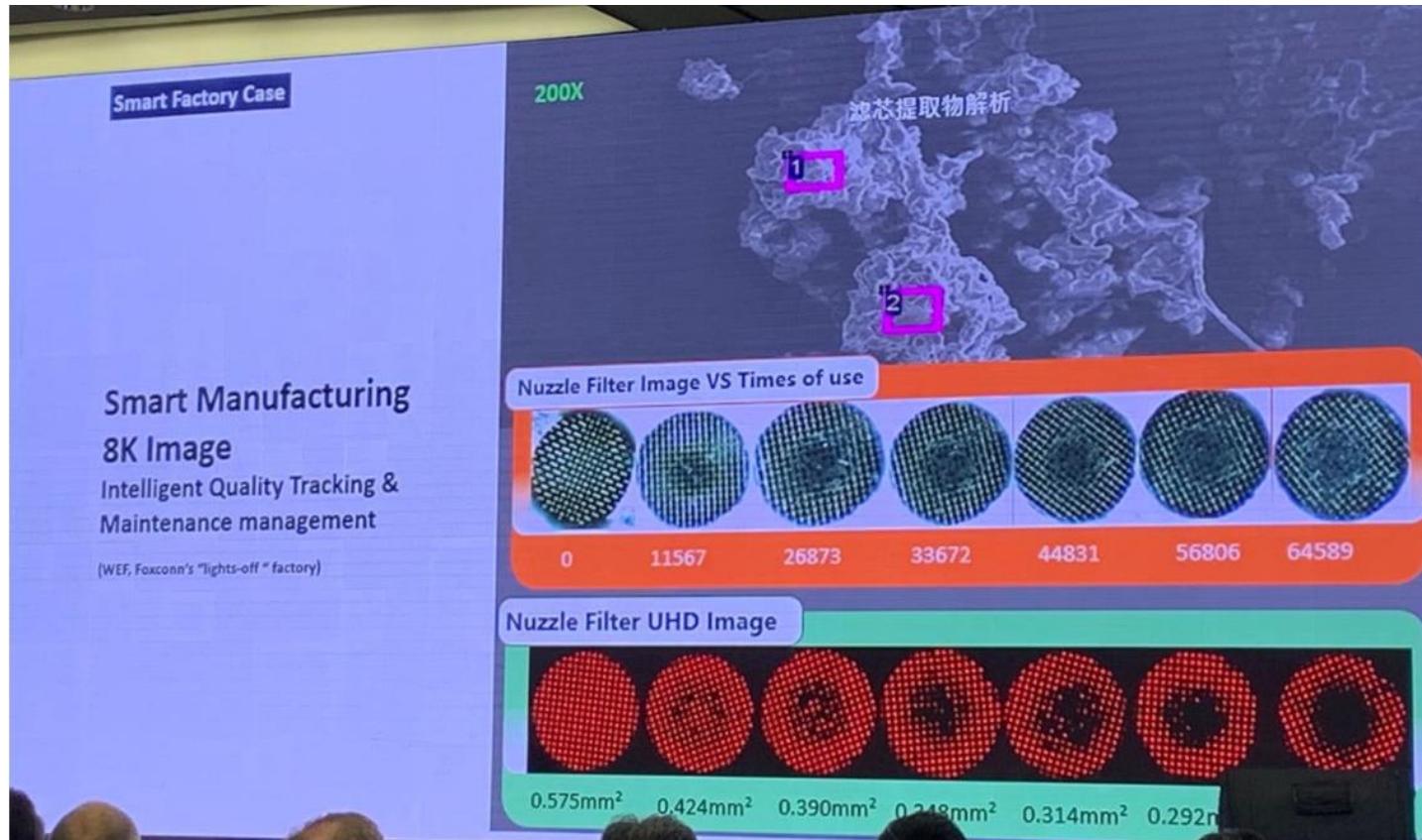
# 8K μ vision 微米視覺 Realtime 異地展演

2020 9月10日台南台江文化 → 台南文化中心異地即時展演

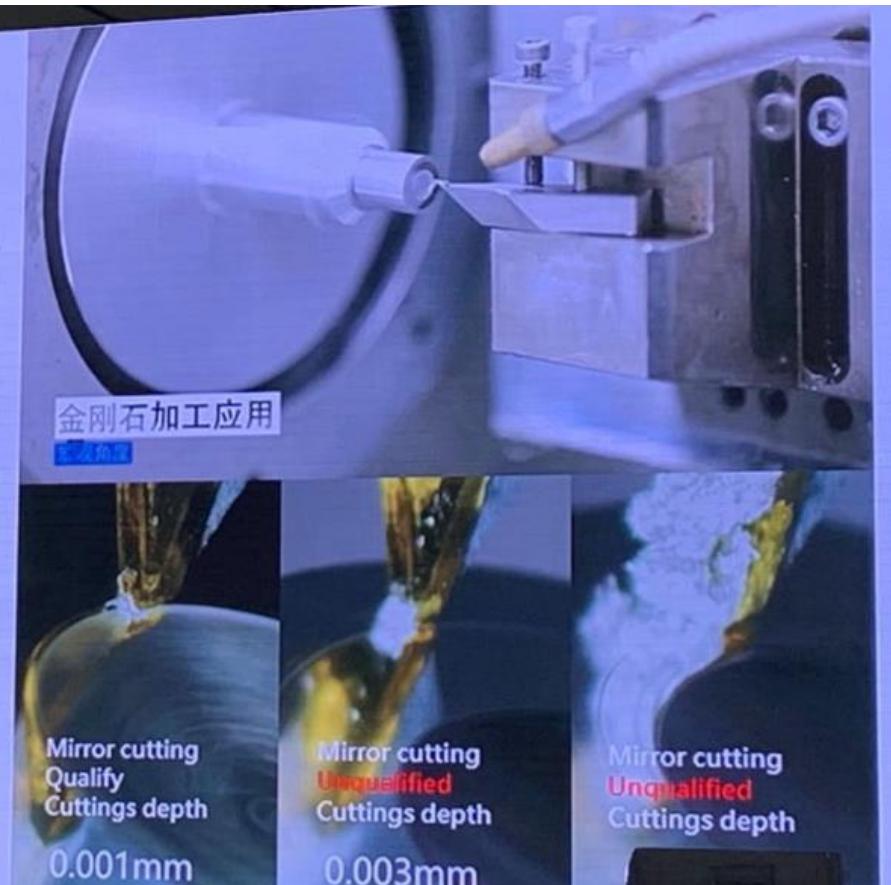


設備設計, 製造, 系統整合:





8K + 5G + AI  
在微觀的大數據中創出新價值鏈  
value @ μm/nm vision



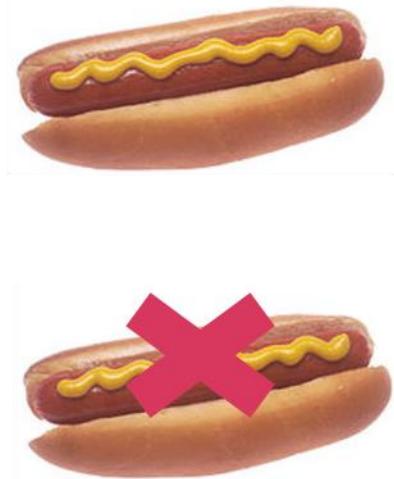
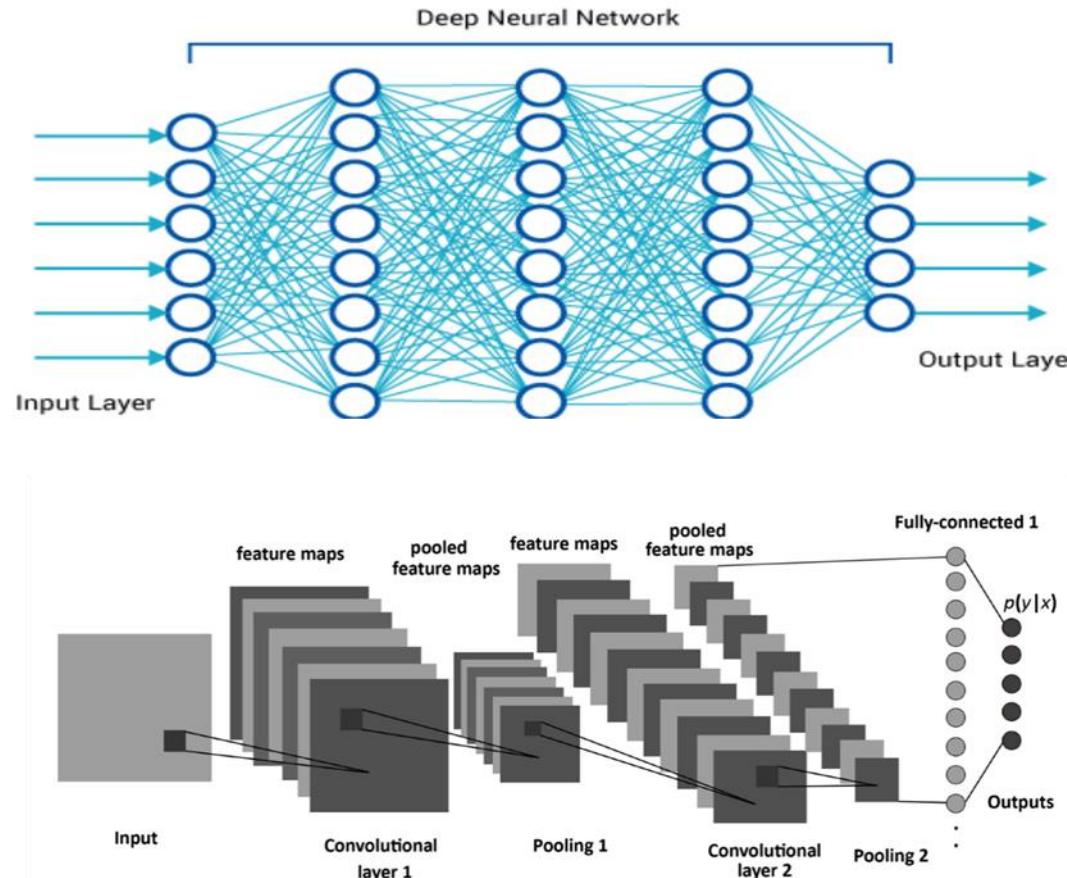
# The latest AI Trends & Markets

**Socionext Taiwan**

Business Development ***Kathy Hsieh***

[kathy.hsieh@socionext.com](mailto:kathy.hsieh@socionext.com)

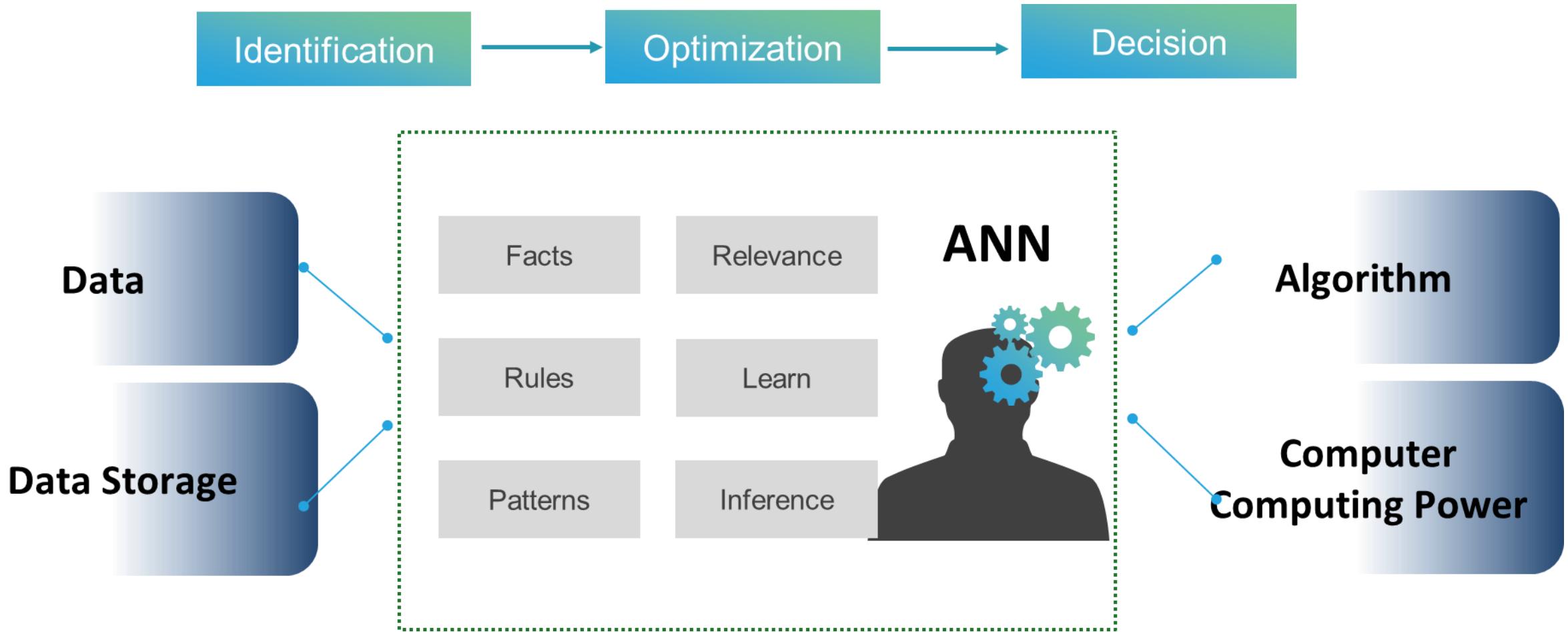
# Deep Learning



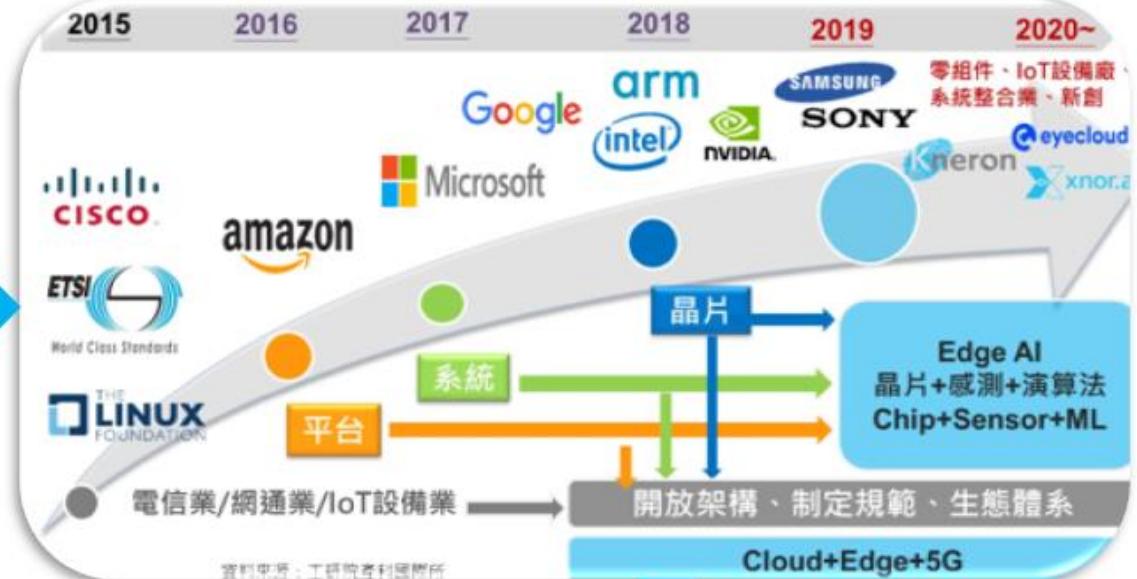
# Is Feature Extraction that EASY ?



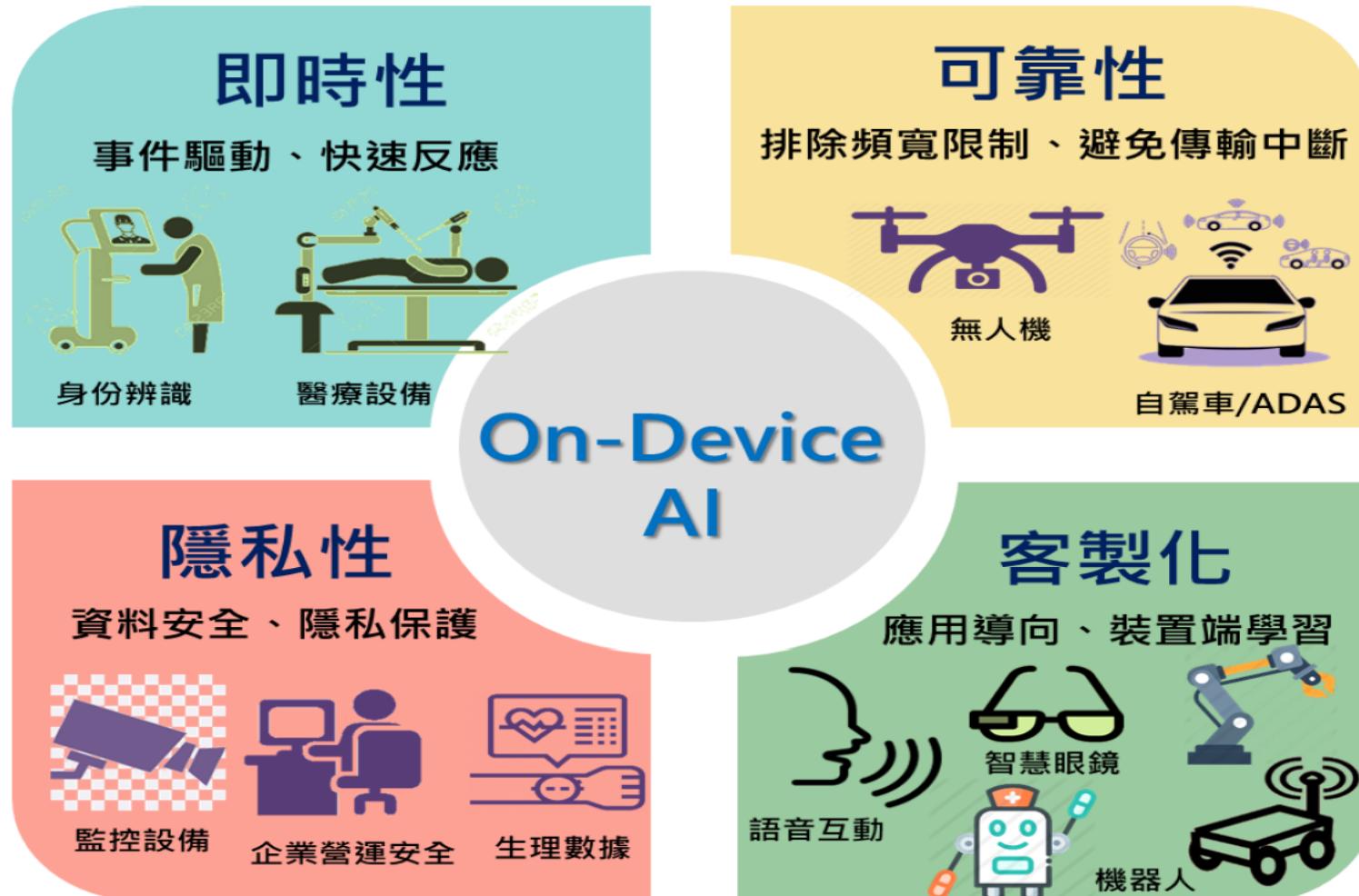
# Elements of AI system



# Edge AI Market Growth



# On-Device AI is the rising start market



資料來源：工研院產科國際所

# AI in Environmental and Labor Safety

# Types of labor disasters and AI artificial intelligence

## 跌倒 / 掉落

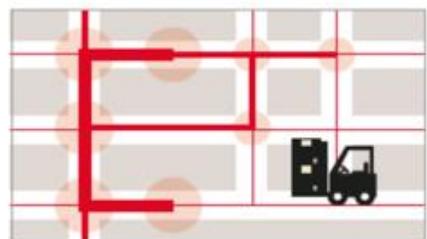
- 單人作業與管制區域識別
- 防護裝備識別

## 人車碰撞與危險駕駛

- 重機與人員定位 · 安全距離警示
- 堆高機路線追蹤定位與通行量

## 操作不當及危險行為

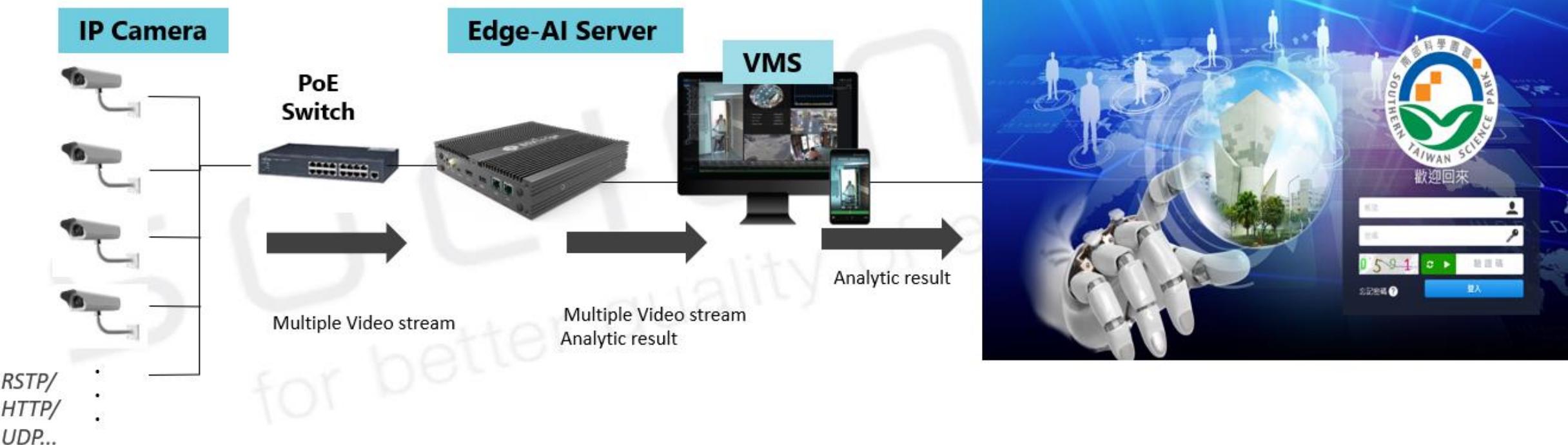
- SOP與危險行為識別
- 意外偵測與警示



# Intelligent Edge-AI System + ERS



**Emergency Response System (緊急應變系統)**



# Intelligent Edge-AI System



shunfa2 (黃順發)

Dashboard

管理功能 >

廠商 >

指揮調度系統 >

風險評估 >

監測

空拍機

即時影像

環境

防汛

地震儀

質譜儀

監測 / 即時影像

顯示即時畫面

顯示全部畫面

編號: 1201 DBoard顯示 地圖

位置: 101南科南路環西路一段

編號: 1206 DBoard顯示 地圖

位置: 106南科三路道爺路

編號: 1208 DBoard顯示 地圖

編號: 1210 DBoard顯示 地圖

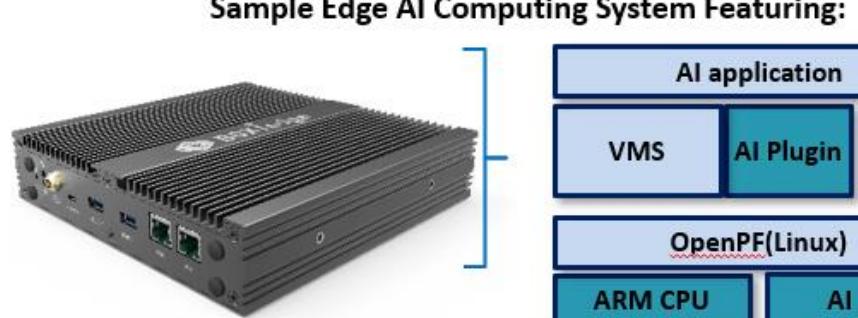
編號: 1207 DBoard顯示 地圖

位置: 107環西路二段西拉雅大道

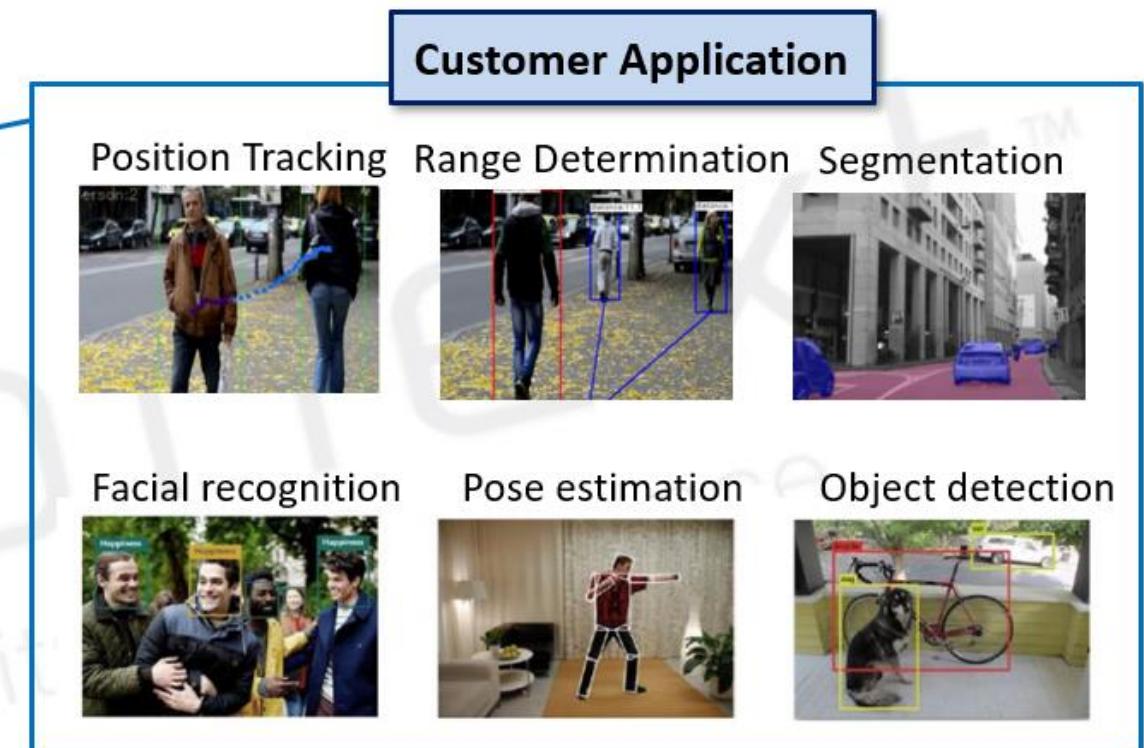
編號: 1220 DBoard顯示 地圖

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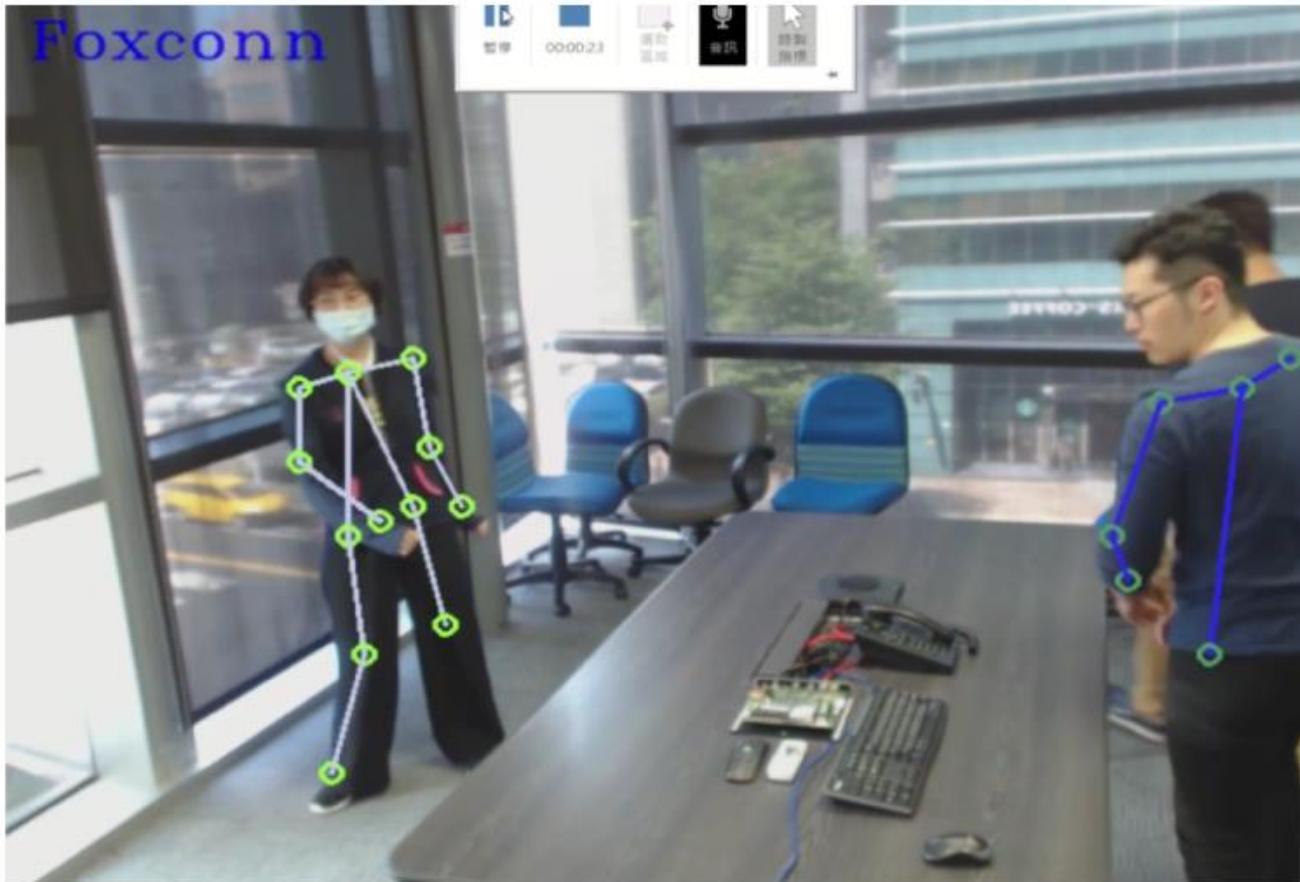
# Various AI application ready on our Edge computing Server



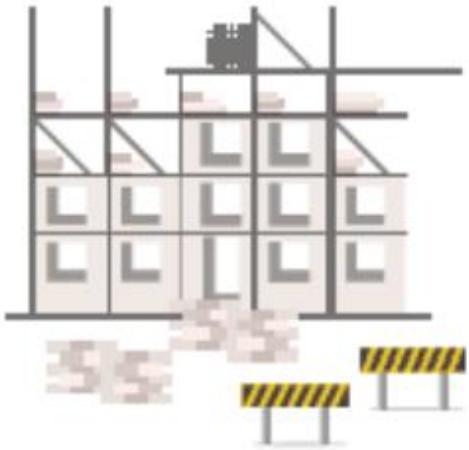
- **Ultra low power** @ typical 35W power consumption
- **Multiple tasks , Perform up to 26 TOPS**  
AI capability ,connects up to 20 ch cameras + real-time AI processing
- Support popular Framework Tensorflow, ONNX and CAFFE
- **Compact, Rugged** (Fan less, Waterproof) with affordable price



# Multi-person Pose Estimation on Edge Server



# Protective Equipment Detection on Edge Server



定点カメラ

- |                |     |
|----------------|-----|
| ハーネス型<br>安全帯   | ⇒ ○ |
| ヘルメット          | ⇒ ○ |
| 防塵マスク          | ⇒ ✗ |
| 頭部ライト          | ⇒ ✗ |
| 安全帯フック<br>2丁掛け | ⇒ ○ |



- ✓ Set a fix-point camera at high altitude
- ✓ Drone camera

# Helmet AI detection with Drone streaming video on Edge Server



# Ultra low-illumination camera (星光級低照度安防攝影機方案)



偏遠山區工程

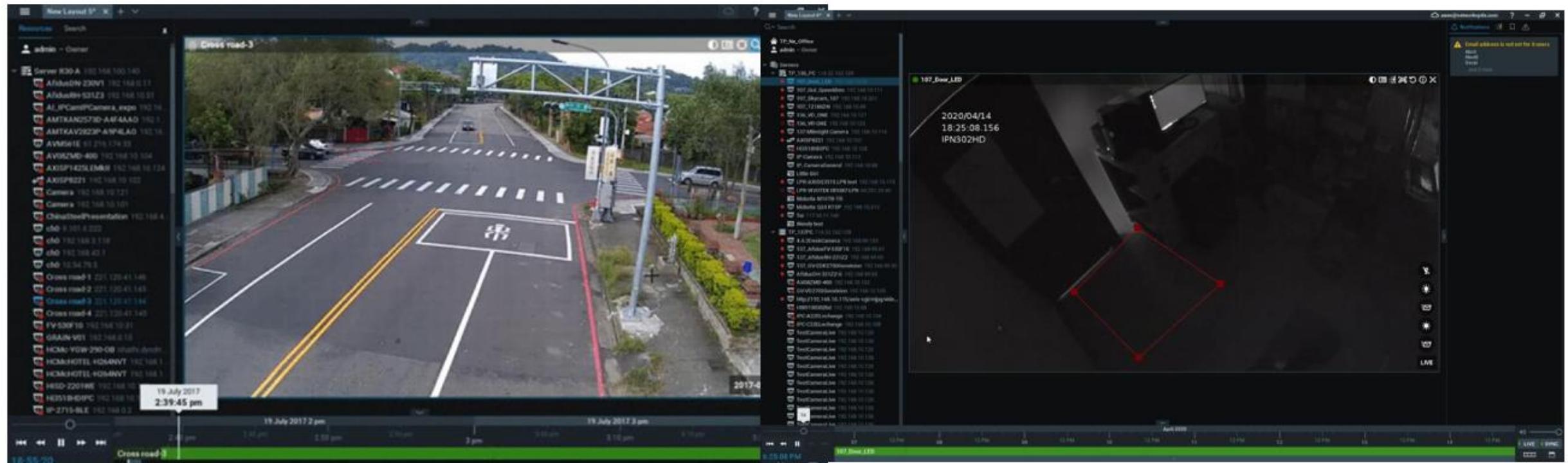


火場濃煙暗處

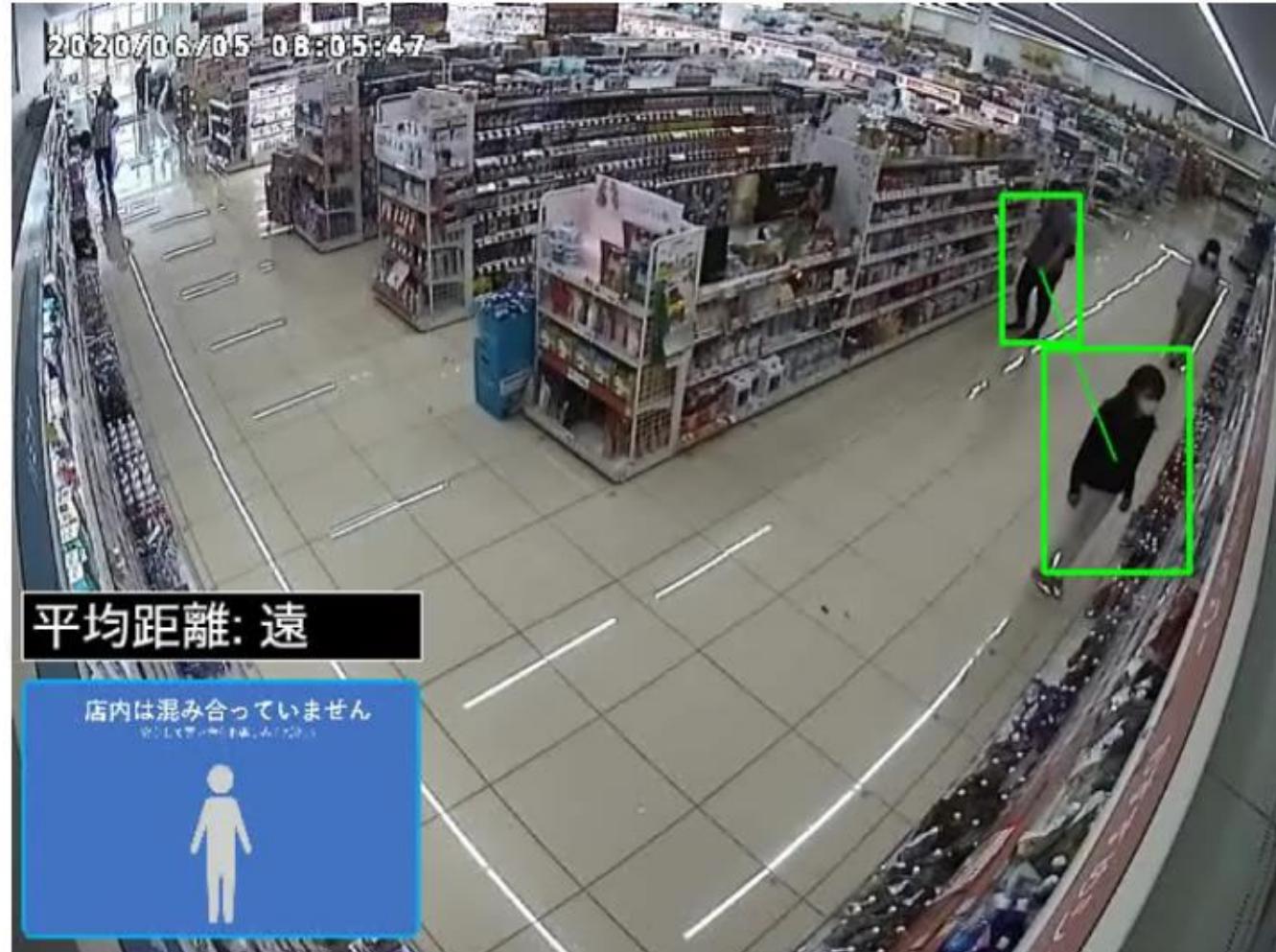


隧道涵洞等局限空間作業

# Electrical Fence and Smart Search on Edge server (電子圍籬與智慧搜尋)



# People counting and Congestion Detection on Edge Server



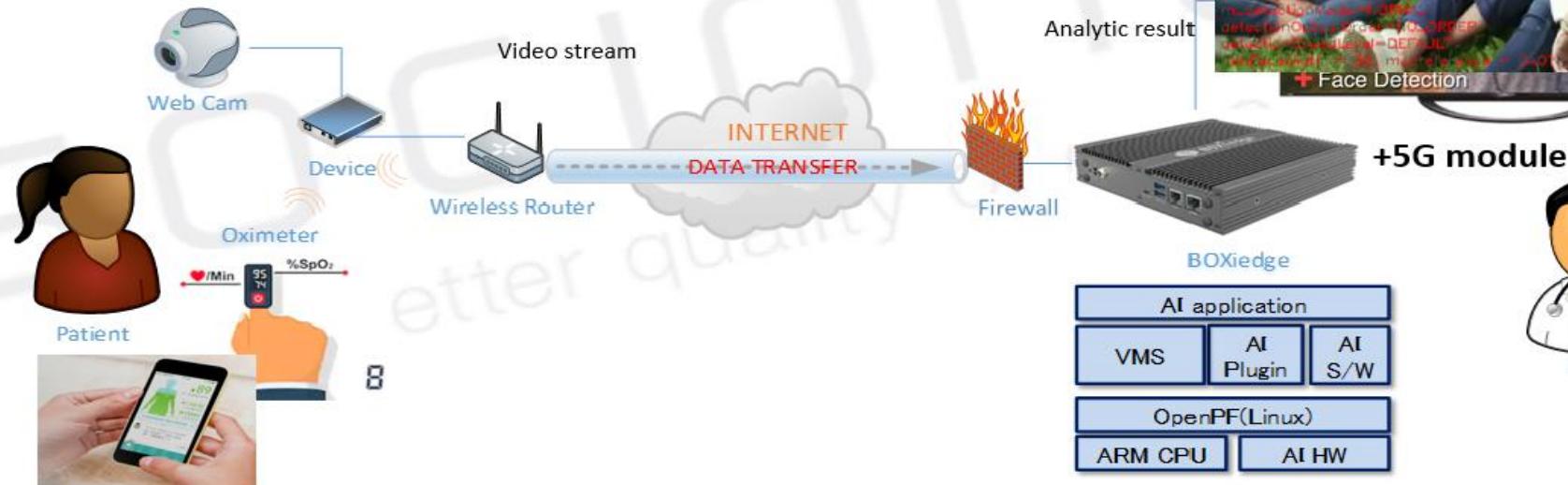
# 5G + Telemedicine + Face Emotion Detection on Edge Server

## ■ Hardware:

1. Edge AI server 2. Home camera 3. PoE switch 4. SpO2

## ■ Software:

1. AI Model (Face/Emotion detection)
2. UI Dashboard



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