

淳安電子股份有限公司
SHUN ON ELECTRONIC CO., LTD.

-我們正在參與改變-

ADAS & Autonomous Driving

6283.TW
2021/12



◆ 市場概要與發展

◆ 公司概況

- ◆ 公司組織與發展歷程

- ◆ 產品：實績與能力

- ◆ 未來規劃

- ◆ 發展階段



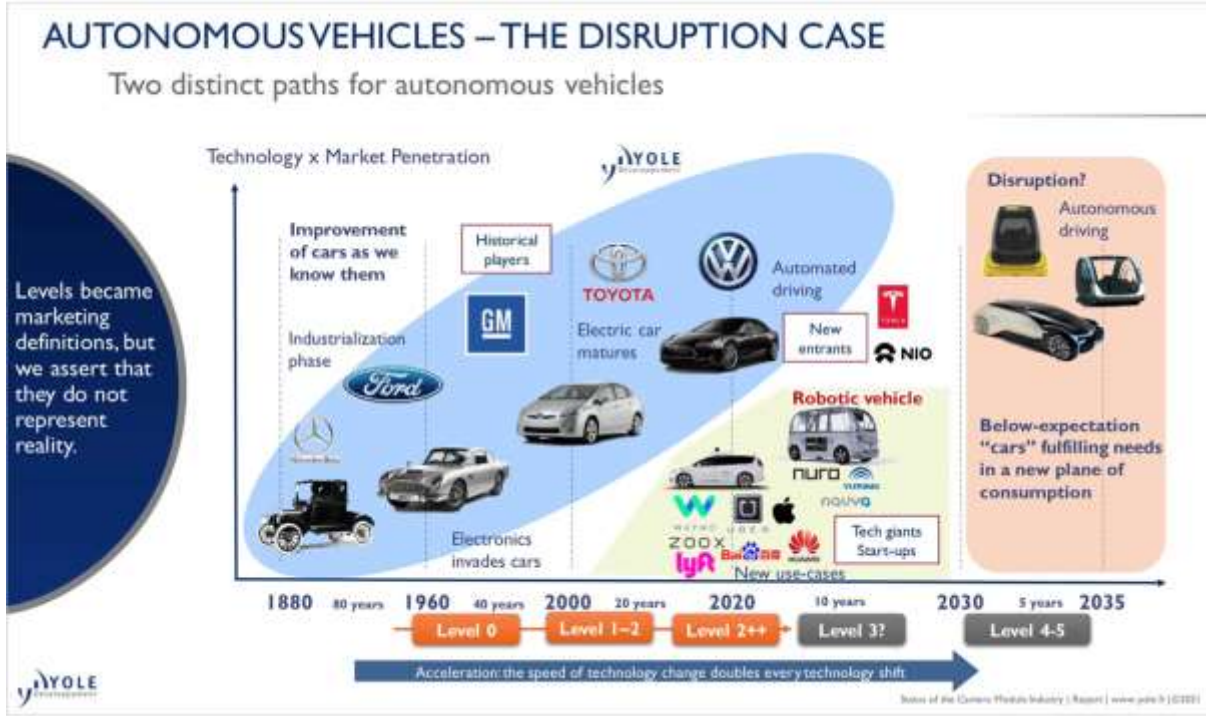
依據IDC報告:

2022~2023是自駕車由L2過渡到L3關鍵發展階段
2024年以後才是滲透率開始提高的起點



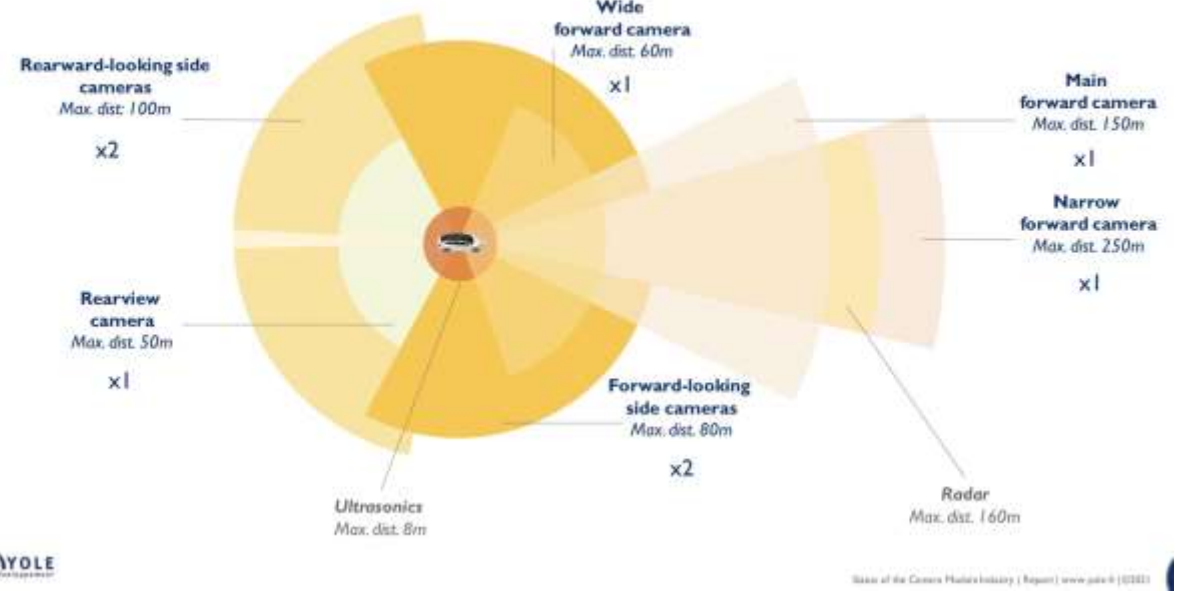
早期掌握並參與關鍵技術及產品開發
是切入自駕車發展的重要工作

攝像頭在自駕車的應用遍地開花



OVERVIEW OF CAMERAS FOR ADAS APPLICATIONS

Sources: Yole Développement and System Plus Consulting reports, 2020



車用攝像頭的發展趨勢

- 由觀看進入感測 Viewing → Sensing
- 由車外發展到車內 RVC → DMC/OMC
- 由一個到多個 AVM(360)



自駕車
十數個→數十個
車用攝像頭

AUTOMOTIVE MARKET TRENDS

Automotive camera modules - volume forecast

Due to Covid-19 issue, the shipments of automotive cameras in 2020 was flat.

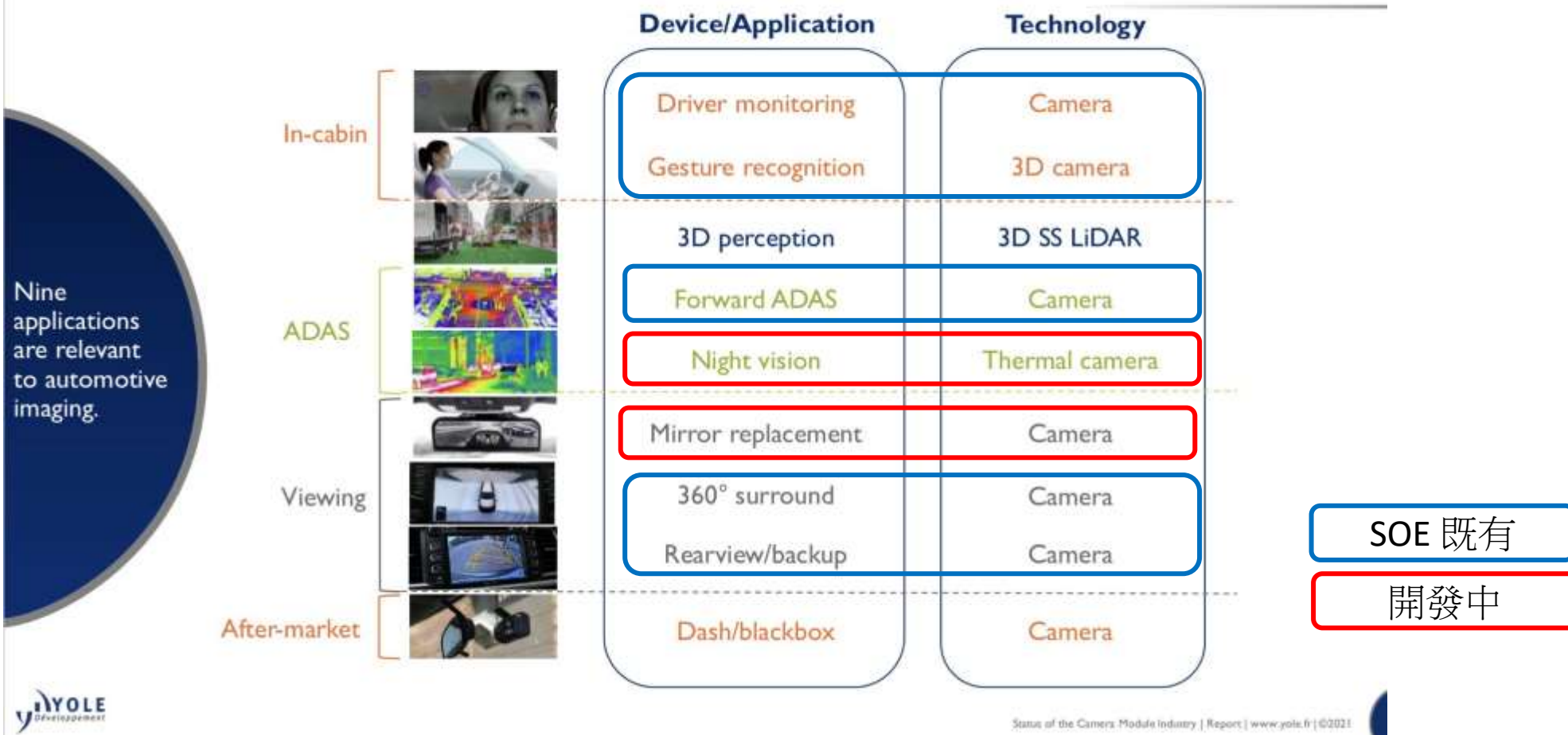
However, automotive CCM volumes will maintain a 17.0% CAGR for the 2020-2026 period due to ADAS and new energy electric vehicle which are starting to take off.

In 2020, the number of automotive image sensors reached almost 145Munits.



- 受Covid-19影響,2020車用攝像頭出貨量持平
- 2020~2026車用攝像頭複合成長率預估達17%
- ADAS應用及新能源車輛是主要成長來源

AUTOMOTIVE IMAGING – DEVICE AND TECHNOLOGY SEGMENTATION



AUTOMOTIVE CAMERA MARKET FORECAST

Automotive camera penetration

In 2020 there were 1.4 cameras per car on average

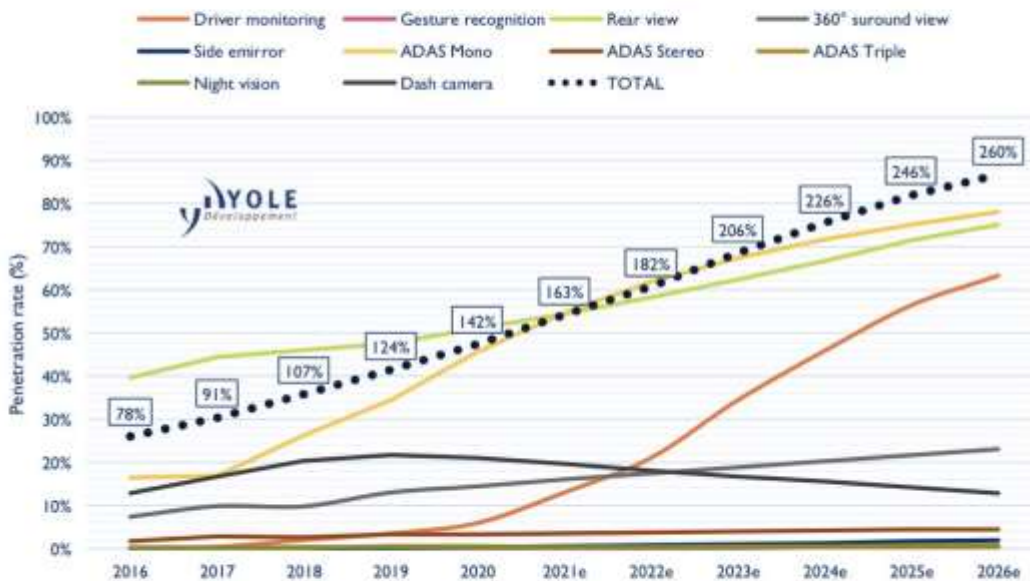
In the past, the biggest driver of growth was viewing applications.

Future growth will be higher for ADAS.

With the rebound of automotive sales, the number of cameras will enjoy double digit growth.

The general trend is a 14.8% CAGR, while ADAS cameras will be a leader with 16.8% CAGR.

2016 - 2026 Automotive camera penetration rate (in %)



Status of the Camera Module Industry | Report | www.yole.fr | ©2021

通用汽車拚了：2030 年北美、中國5 成工廠可生產電動車| TechNews 科技新報

TechNews 科技新報 · 3 小時前

- 通用汽車全速衝刺電動車力拼2030年營收翻倍成長追趕特斯拉| Anue 鉅亨- 美股

Anue鉅亨 · 3 小時前

[查看完整報導](#)



通用汽車：L2 Ultra Cruise 採用5 奈米晶片，2023 年問世| TechNews 科技新報

TechNews 科技新報 · 2 小時前



GM表示，Ultra Cruise在美國、加拿大推出時將覆蓋超過200萬英里道路，後續可擴增至超過340萬英里。透過Ultra Cruise，用戶將能在95%駕駛情境真正放開雙手，穿梭幾乎每條道路，包括高速公路、市區街道、小街道和鄉村道路。

gm
ULTRA CRUISE

95% OF DRIVING SCENARIOS
a public paved road in U.S.

MORE SENSORS
from ULTRA CRUISE

2 MILLION ROADS
In the U.S. & Canada, with a total of 3.8 million miles covered over time

- Ultra Cruise Dynamic Display
- Full 360-degree perception
- Sensor Fusion of cameras, radar & lidar
- Developed by Israel, U.S., Canada & Ireland
- Launching in 2023
- The goal is to cover every public paved road in U.S. & Canada
- Level 2 Advanced Driver Assistance System (ADAS)
- Powered by a 5-nanometer scalable architecture

GM全球產品開發、採購和供應鏈執行副總Doug Parks表示，Ultra Cruise是GM 100%自行設計開發。GM另一款名為「Super Cruise」的先進駕駛輔助技術將內建主流車款，與Ultra Cruise的高階車款定位區隔。

通用汽車拚了：2030 年北美、中國 5 成工廠可生產電動車

作者 MoneyDJ | 發布日期 2021 年 10 月 07 日 9:27 | 分類 汽車科技, 自駕車, 電動車



通用汽車公司 (General Motors Co, GM) 週三 (10 月 6 日) 在法說會上宣布，2030 年北美、中國廠房面積將有超過五成能夠生產電動車 (EV)。



即時



通用旗下Cruise 樂見自駕叫車服務 估6年內營收上看500億美元

1小時前 | 鉅亨網編譯張博翔

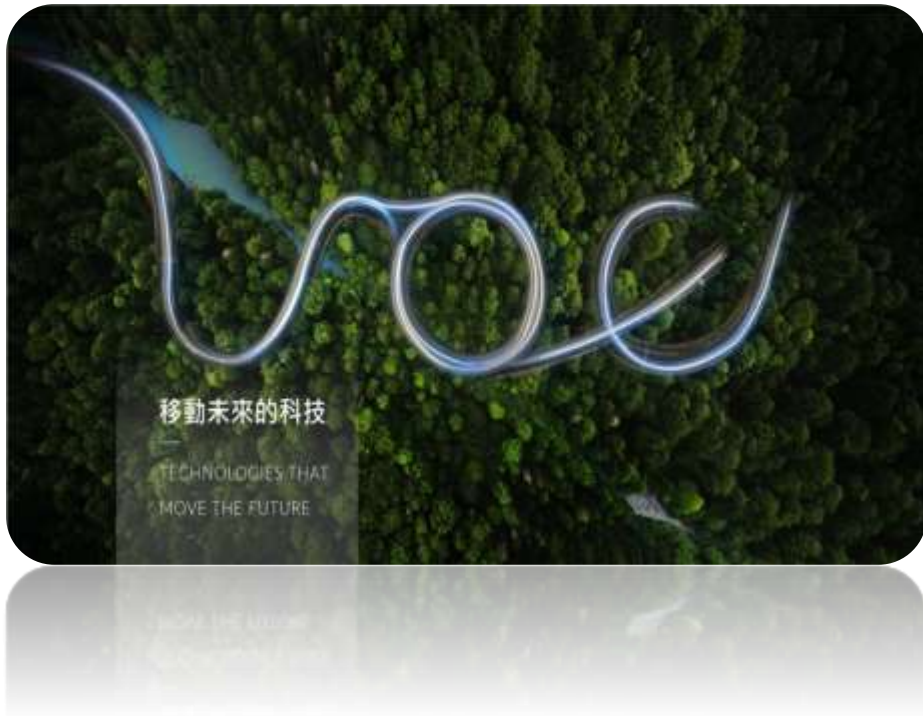


通用旗下Cruise 樂見自駕叫車服務 估6年內營收上看500億美元 (圖：AFP)

淳安電子股份有限公司
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2021/12





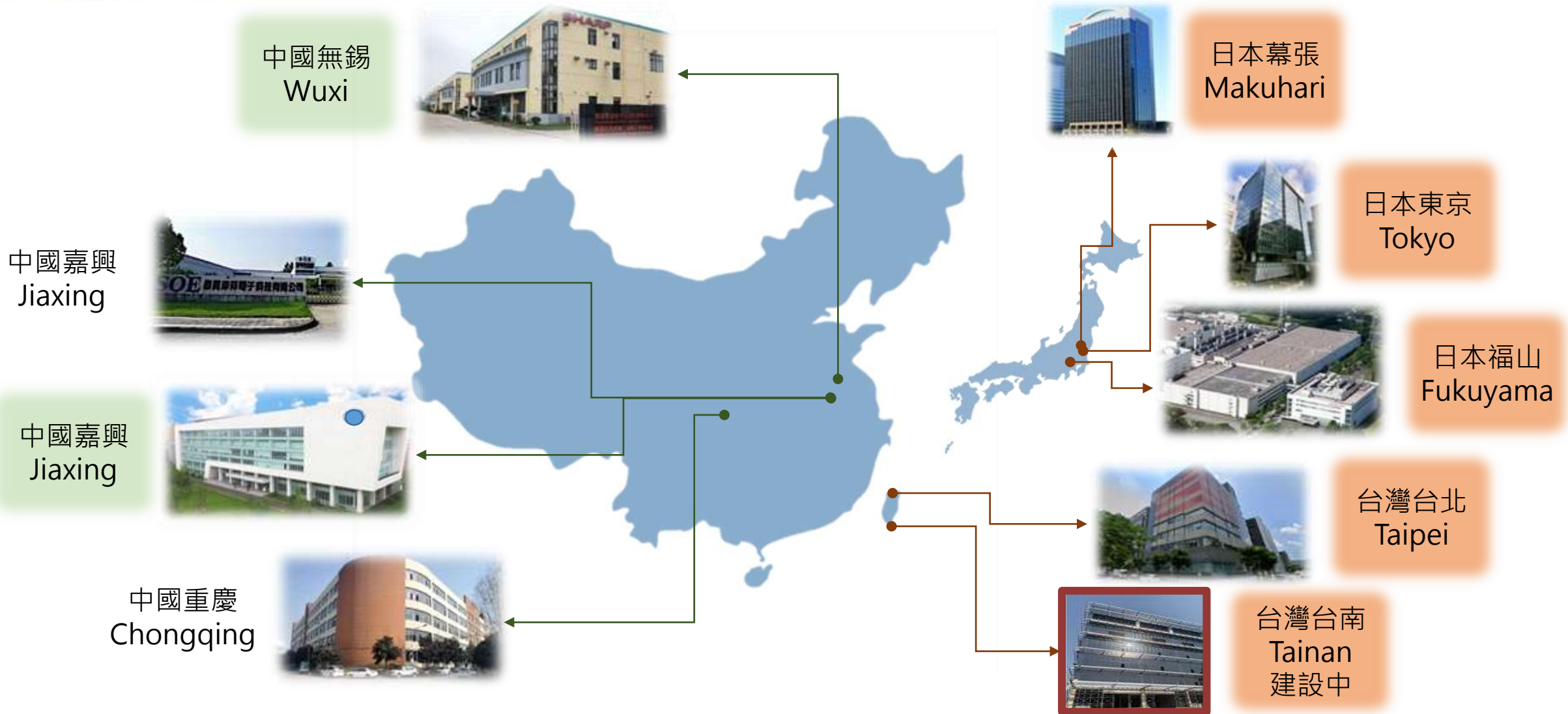
- 成立於1996年1月12日 Established in 1996
- 實收資本額新台幣14.8億 Paid in capital NTD 1.48B
- 員工人數約1,700人 (2020/12) round 1,700 employees
- 主要股東：敏台投資、智嘉投資、群光集團、富邦人壽等。
Major shareholders : Min Tai 、 Giga Investment Co. 、
Chicony Electronics 、 Fubon Life Assurance ... etc.

跨足汽車，不斷強化競爭優勢，與全球車廠建立長期業務關係，致力於成為汽車廠的優秀供應夥伴。

Step into automobiles, continuously strengthen competitive advantages, have long-term business relationships with global automakers, and strive to become an excellent supplier and partner for automakers.



公司基地 Company locations



薄膜 Membrane

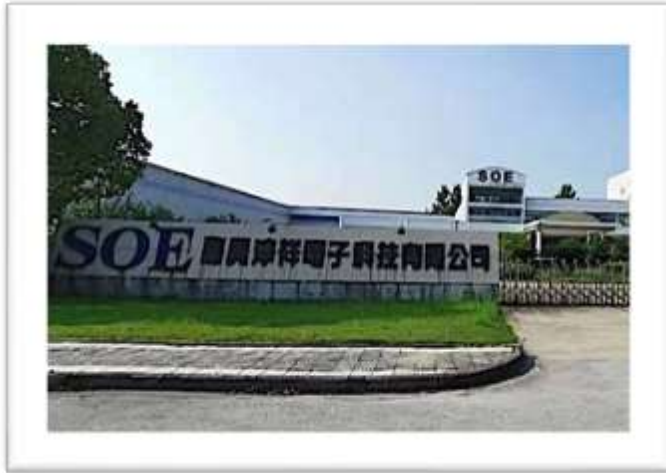


- 筆電腦鍵盤、滑鼠、繪圖板、電話機等薄膜開關。 Membrane for keyboard, mouse, graphics tablet, phone ... etc.
- 電器產品—各類電器按鍵薄膜開關。 Membrane for dome switches of various electronic products.
- 工業設備—工業電腦、工具機按鍵薄膜開關。 Membrane for industrial equipment such IPC and machining center.

車用產品 Auto-parts



- 0.3M、1M、2M、4M、5M、8M車用攝像頭。 0.3M、1M、2M、4M、5M、8M cameras for automobile.
- 3D AVM、DMS、BDS、LAW等ADAS用車用攝像頭。 Cameras for ADAS functions such as 3D AVM、DMS、BDS、LAW... etc.
- E-mirror、自動駕駛用車用攝像頭。 Cameras for E-mirror or autopilot.

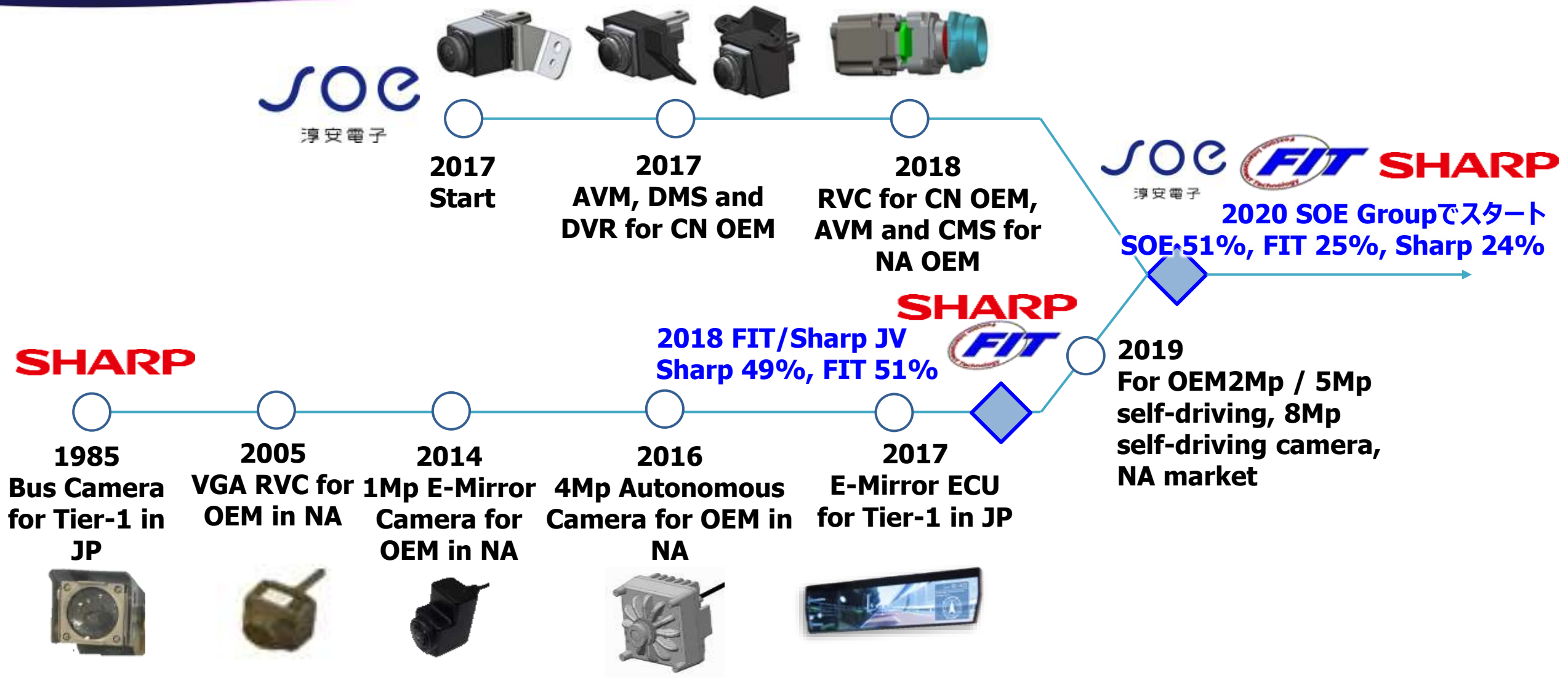


薄膜嘉興廠
Membrane Jiaying Factory
產能220萬片/月
Capacity 2.2 millions pics / months

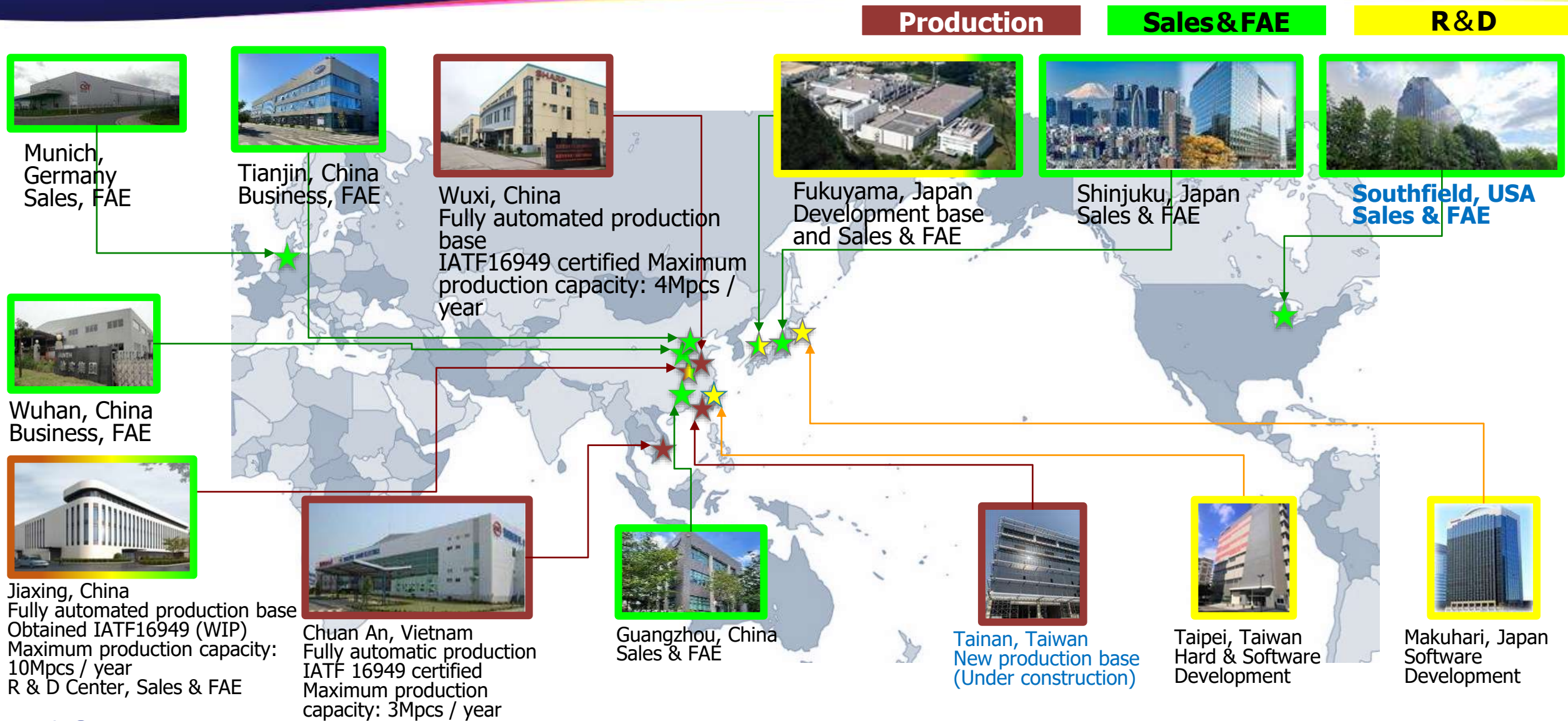


薄膜重慶廠
Membrane Chongqing Factory
產能260萬片/月
Capacity 2.6 millions pics / months

車用攝像頭發展歷程 Automotive Camera Development



車用電子全球分佈 Global footprint



品質與客戶認證 Quality and customer certification



IATF 16949
(Wuxi 2018~2021)



IATF 16949
(Ningbo 2020~2023)



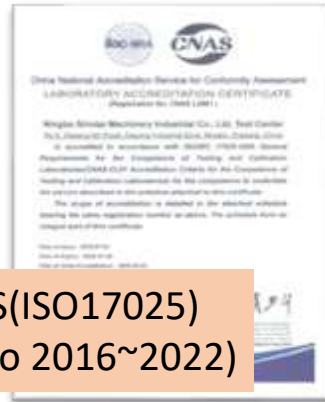
ISO 14001
(Wuxi)



ISO 14001
(Ningbo 2008~2021)



OHSAS 18001
(Ningbo 2018~2021)

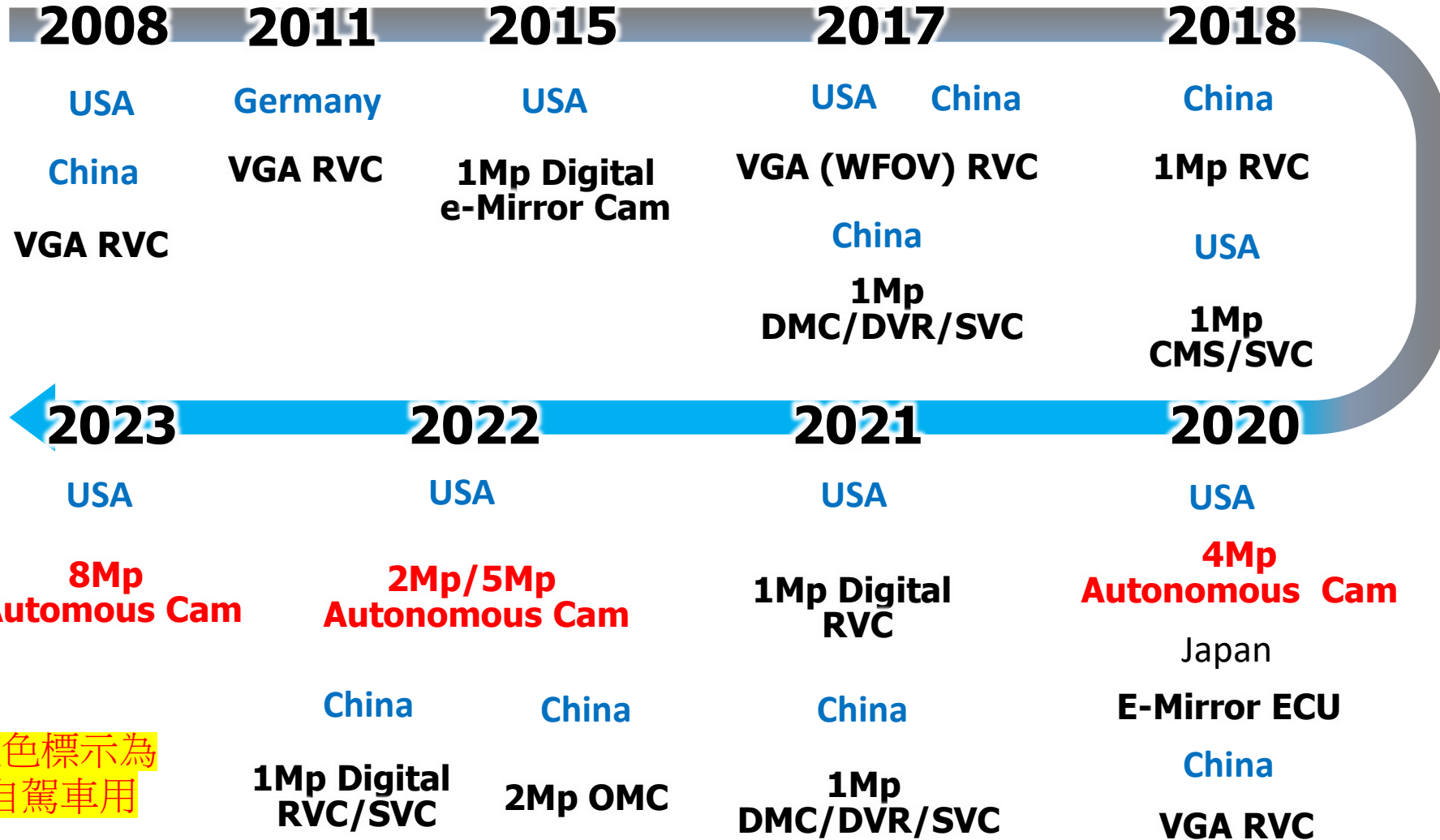


CNAS(ISO17025)
(Ningbo 2016~2022)



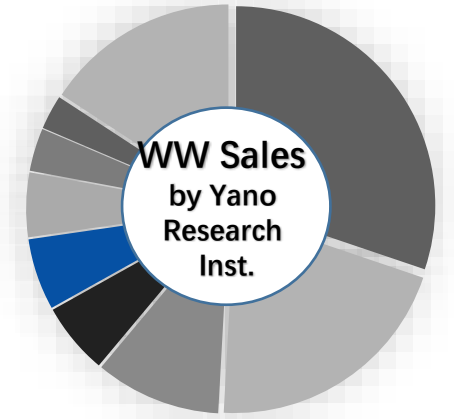
NIO Laboratory Accreditation
(Ningbo-2018/2019)

車用攝像頭實績 Product proven record

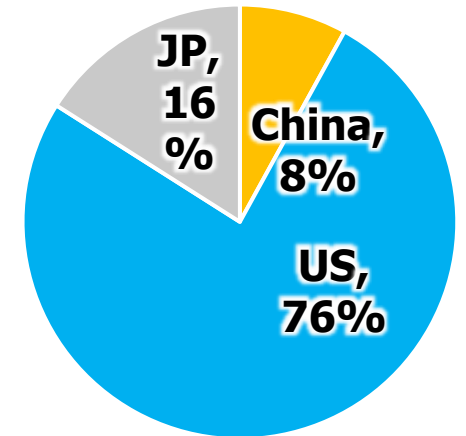


紅色標示為
自駕車用

2018 Market Share of Rear View Camera



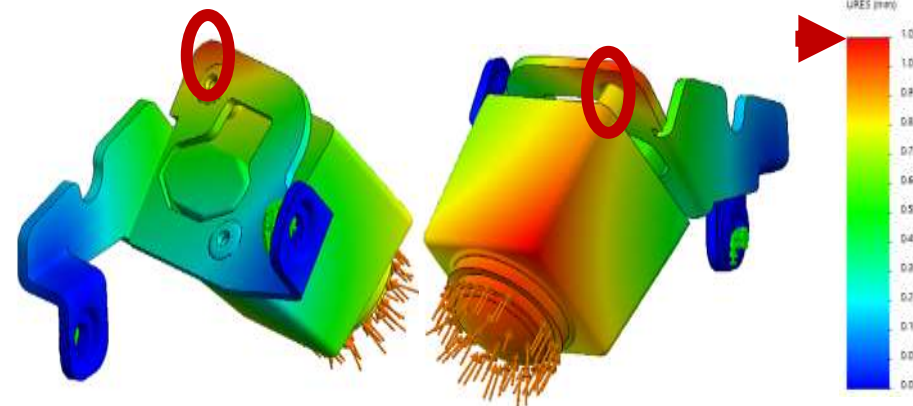
2020 Sales by Region



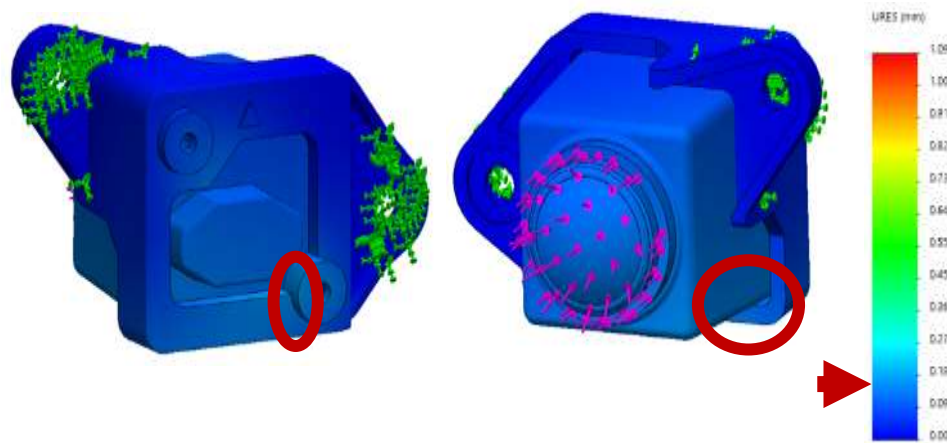
- 螺絲鎖附
- 超音波接合
- 雷射接合

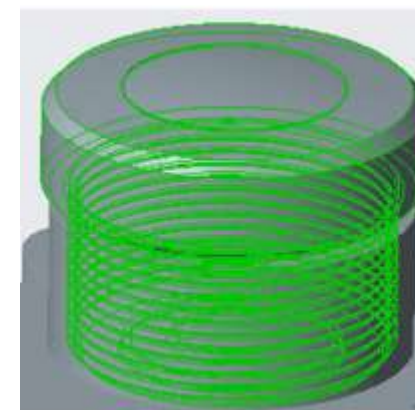
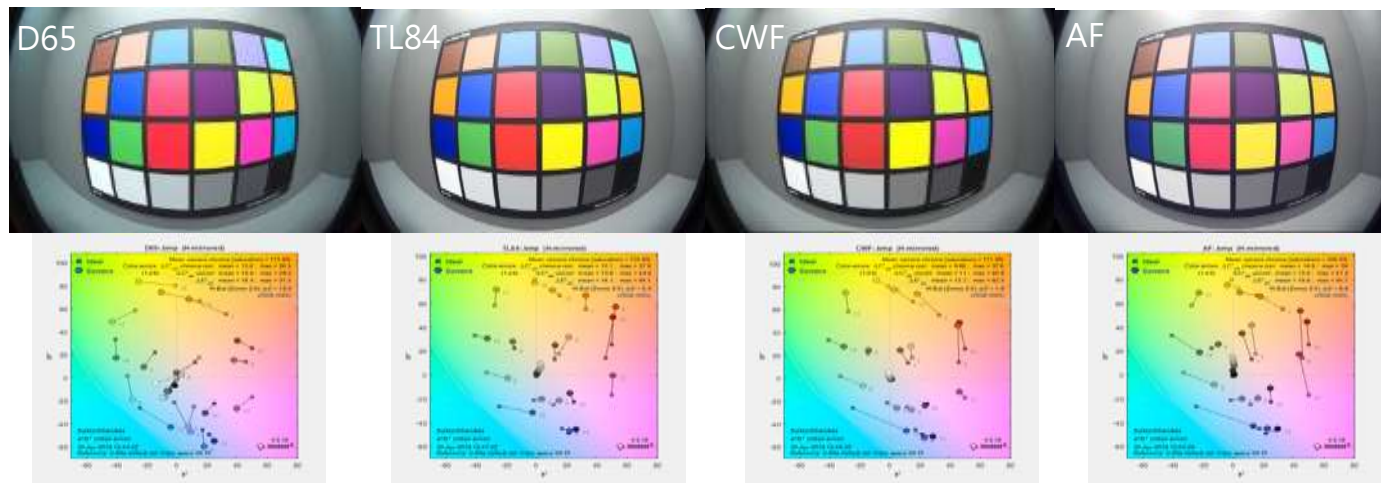
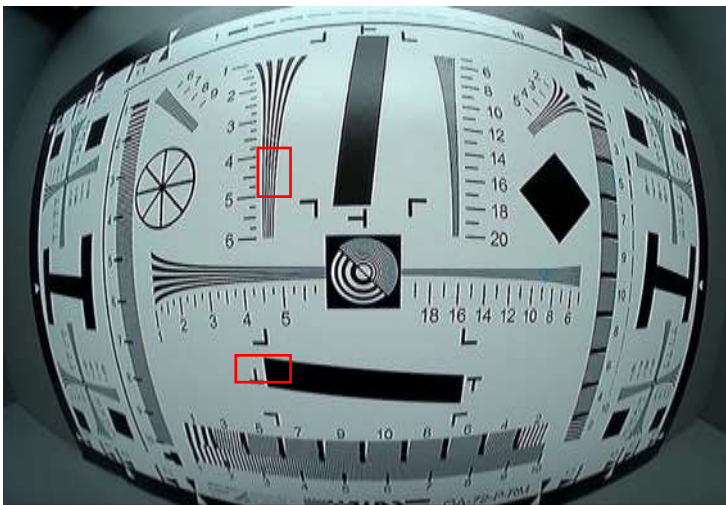


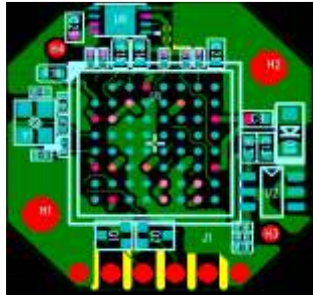
Before optimizing



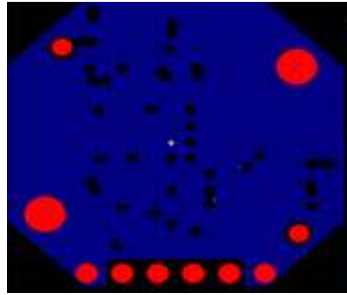
After optimizing



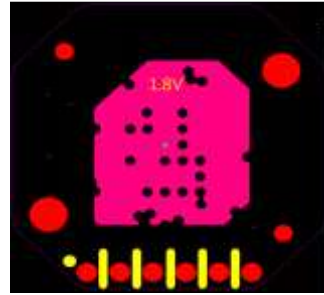




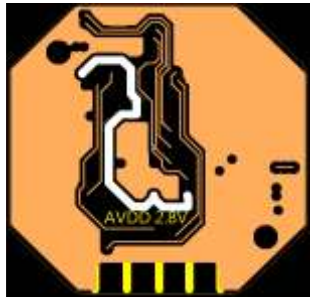
Top Layer



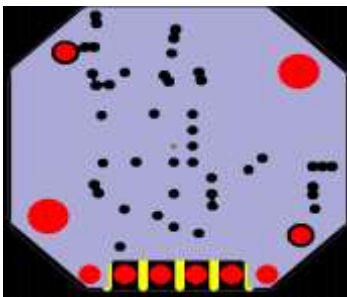
2nd Layer GND



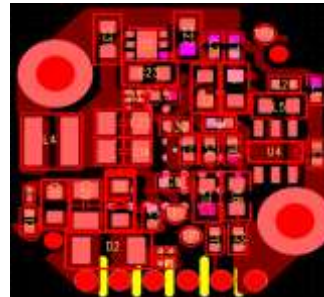
3rd Layer Power



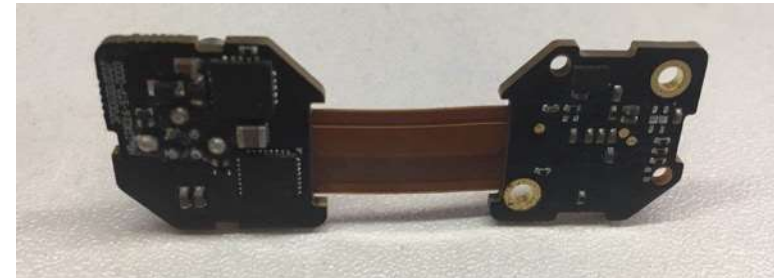
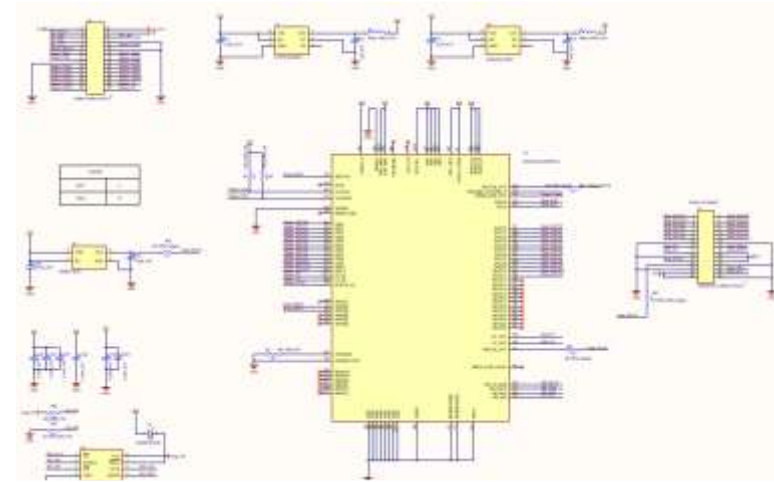
4th Layer Trace

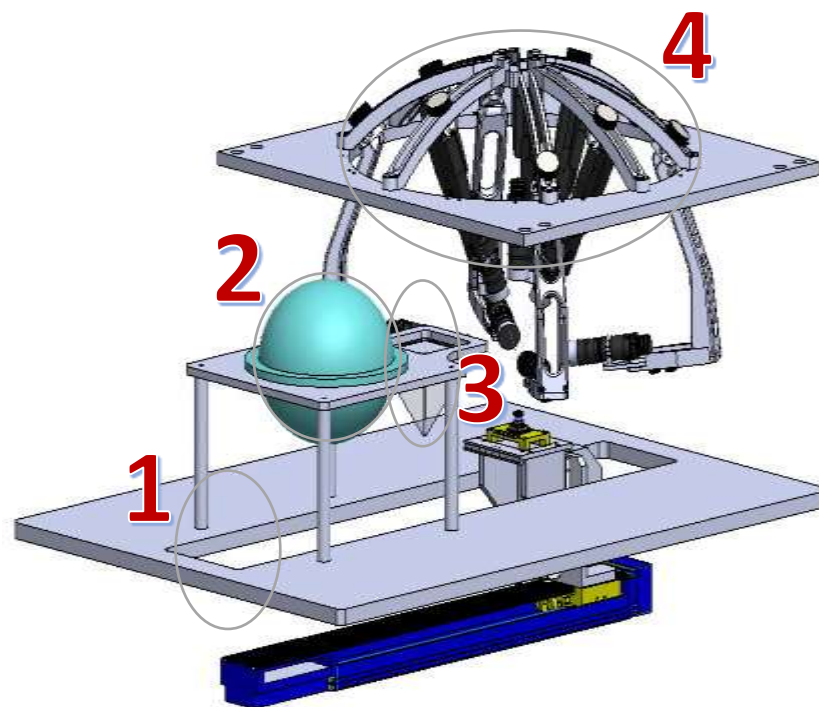
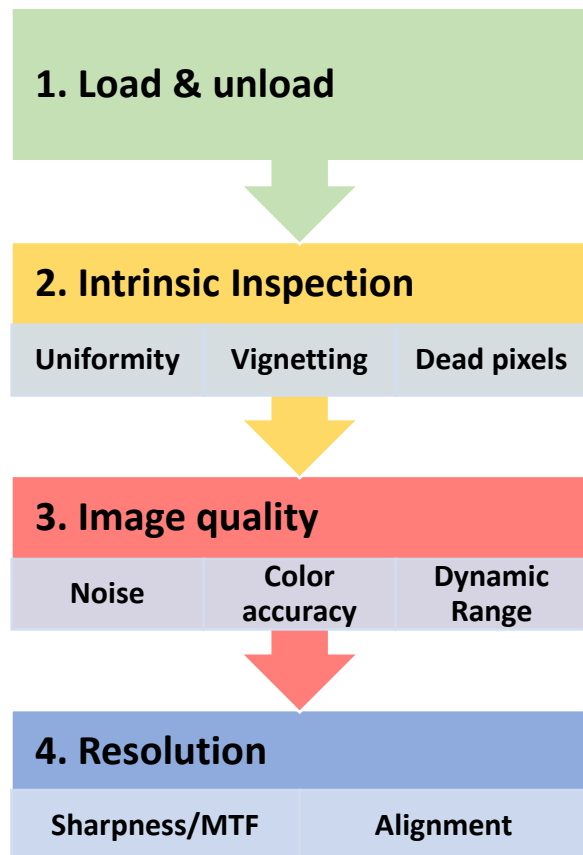


5th Layer GND



Bottom Layer



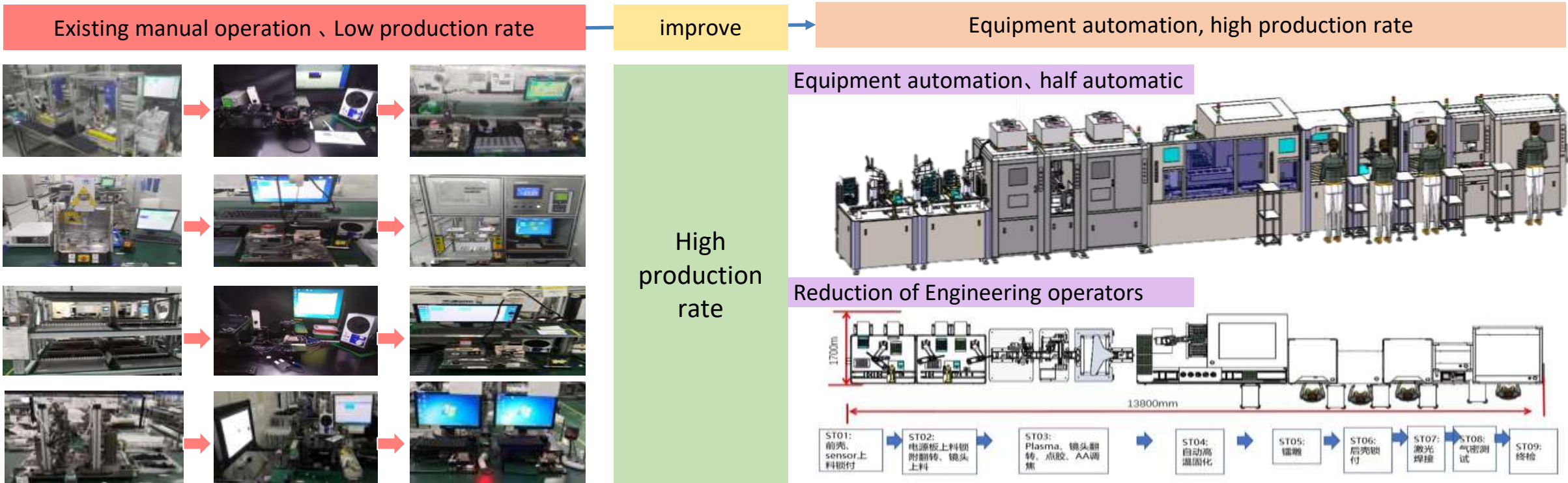


自動化生產線 Automatic production line

Existing Manual Line :
 Operators : 13persons
 Process count : 16
 Capacity : 15K/M

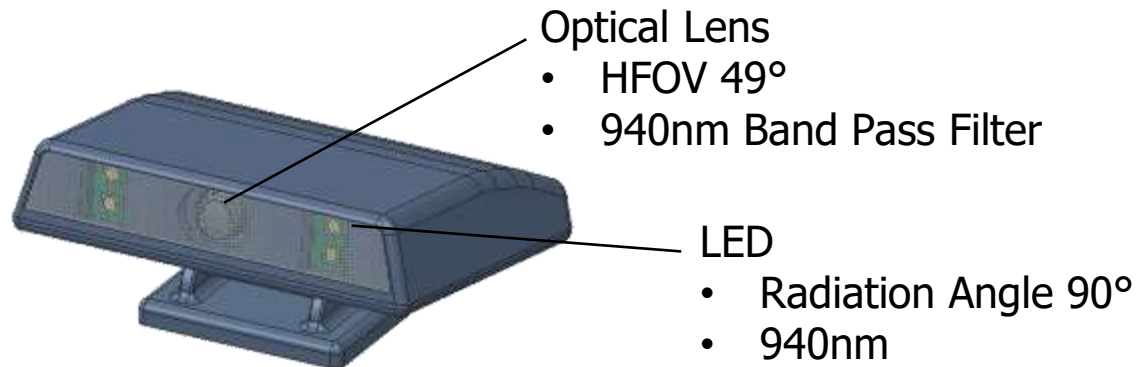
<Results of improvement>
 Reduction of operators : 8 persons/shift, ▼4000 RMB/shift
 Process count : ▼7 Processing time : ▼1.47 min/set
 Capacity : +35K/M Sales amount : +4.5M RMB

High efficiency, Automatic Production:
Operator : 5 persons(8 reduced)
 Process count: 9 (7 reduced)
Capacity: 50K/M (Increase +35K/M)

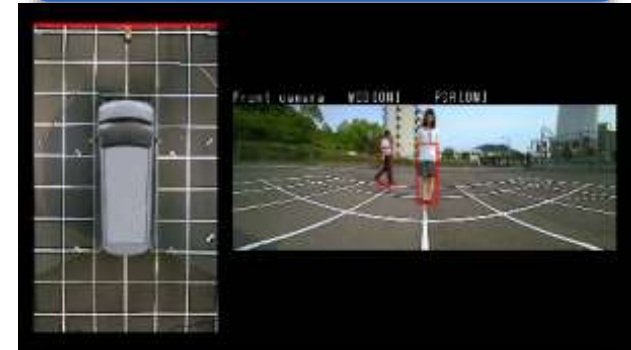


Verifying various applications (e-mirror, SVM, in-cabin system, etc.) by installing cameras with sub-system in the vehicle.

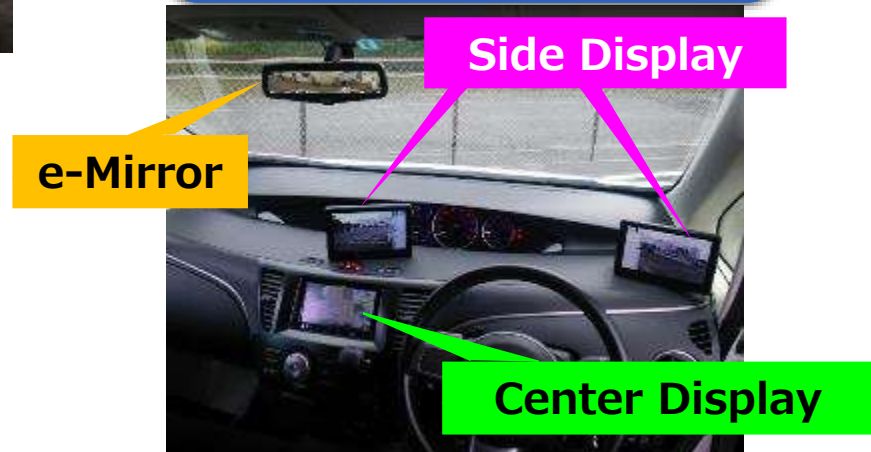
Driver Monitoring System



Surround View System

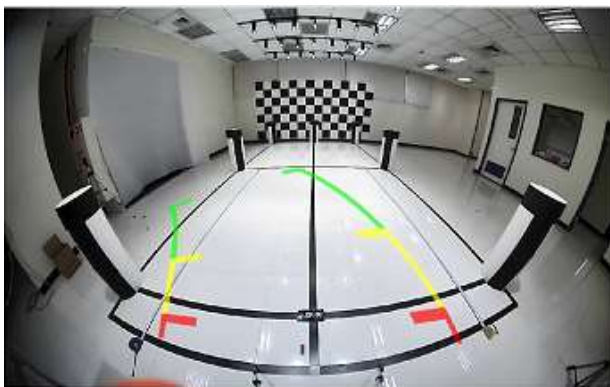


Camera Monitor System



- RVC Test at FMVSS111 Field to validate FOV、Top-Down、Zoom-In / Out as an example.

- Normal View



- Distortion Correction



- Top-Down



- Zoom-In x 2



- Zoom-In x 4

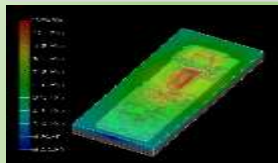


Low EMC Design Capability

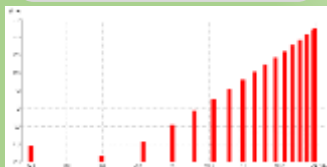
Ultra low EMC products can be provided based on our expertise and experience in circuit design

SI Analysis

EM Near-Field Simulation

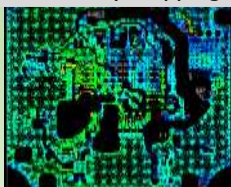


EM Far-Field Simulation

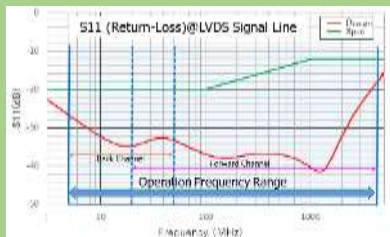


PI Analysis

Current Density Mapping



Microwave Simulation

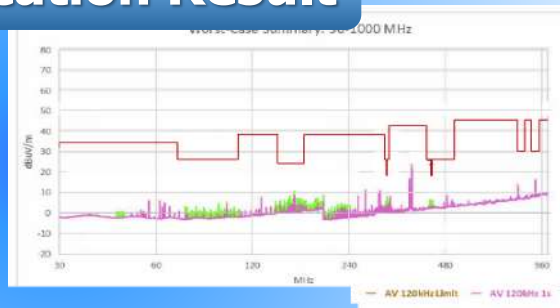
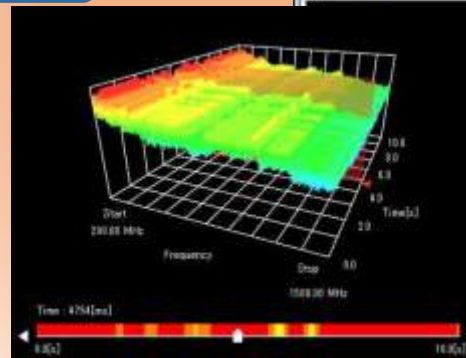
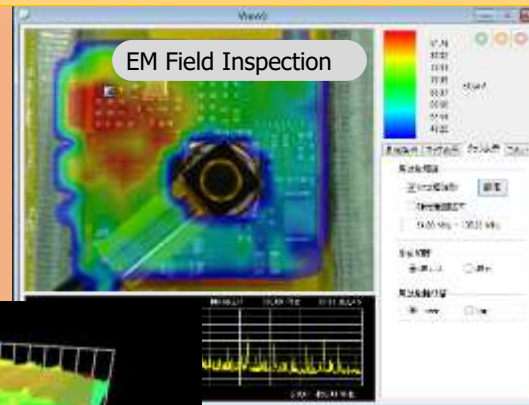


Design

Verification



Certification Result



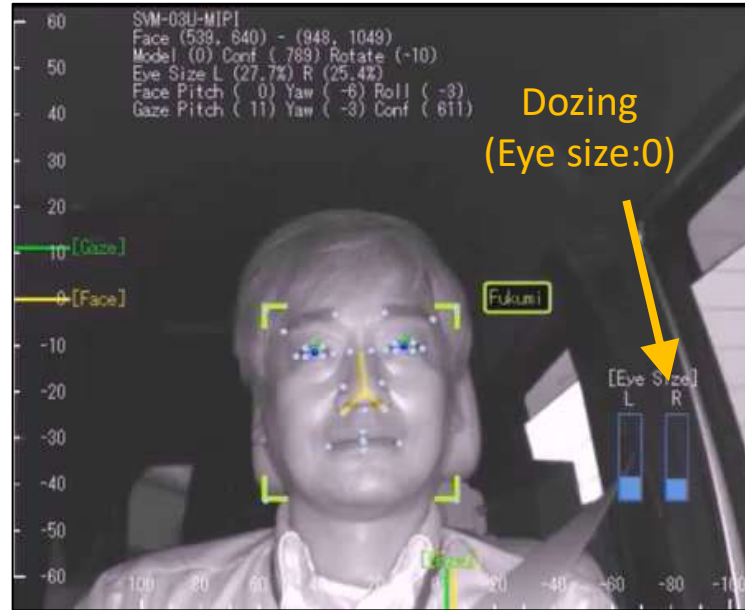
HW	SW	ME	Functional Safety
OrCAD Capture 	NXP S32 IC IDE 	CATIA V5 	IBM Rational DOORS 
Altium Designer 	Freescale IC IDE 	Creo 2.0 	TESSY 
OrCAD PCB Designer 	TI Code Composer Studio 	AutoCAD 	Redmine 
PSPICE 	Kavser Canking 		Polyspace Bug Finder 
	OVTA PantherT 		VectorCast QA Enterprise Edition 
	NI Labview 		ANSYS Medini Analyze 
	Matlab 		

2M鏡頭搭配車內監視系統 Camera with DMS & OMS

Video with visible camera



Near infrared camera



SOE 2M OMS
乘客監控系統
將於2022Q1起
搭載於NIO全車型
量產上市

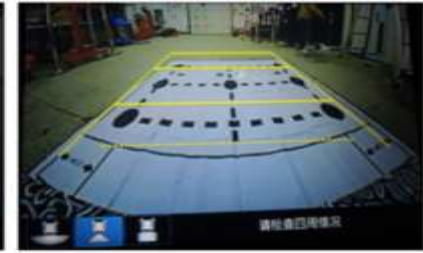


一顆攝像頭，三個模態
Three mode in one camera.

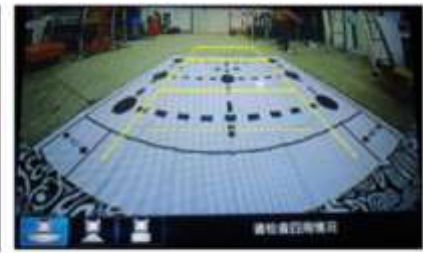


SOE

Mxxxx



normal mode



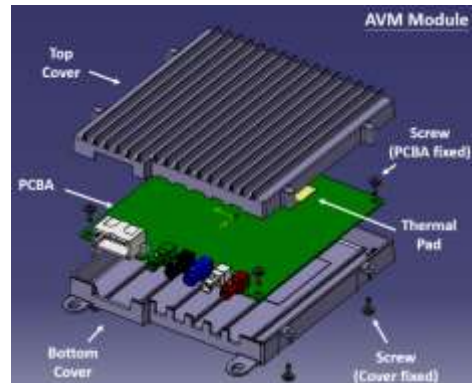
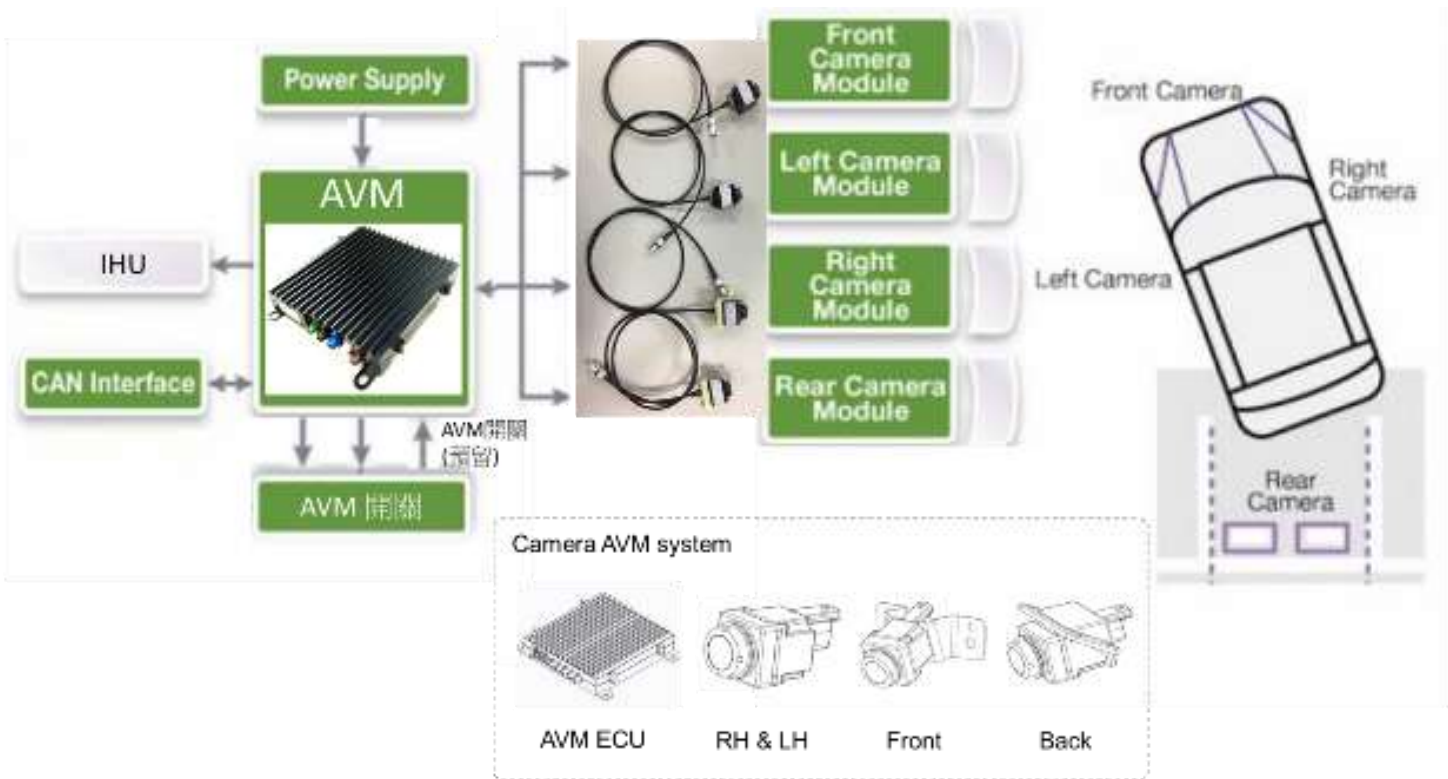
wide mode



TopDown mode

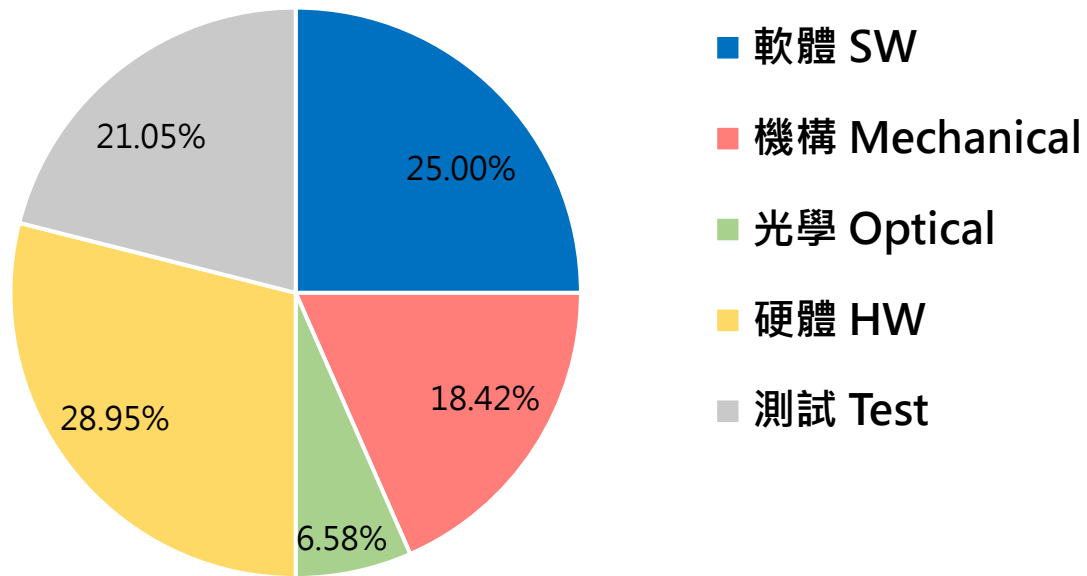
項目案例-2 Case study -2

環景攝像頭(四顆)+控制盒 Around view camera with ECU



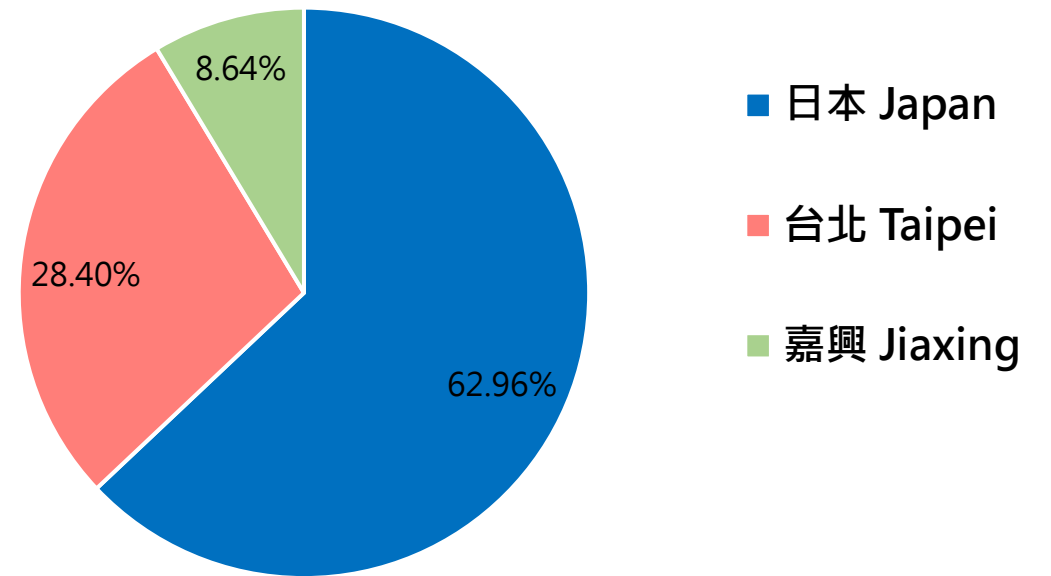
研發團隊組成

Development team by function



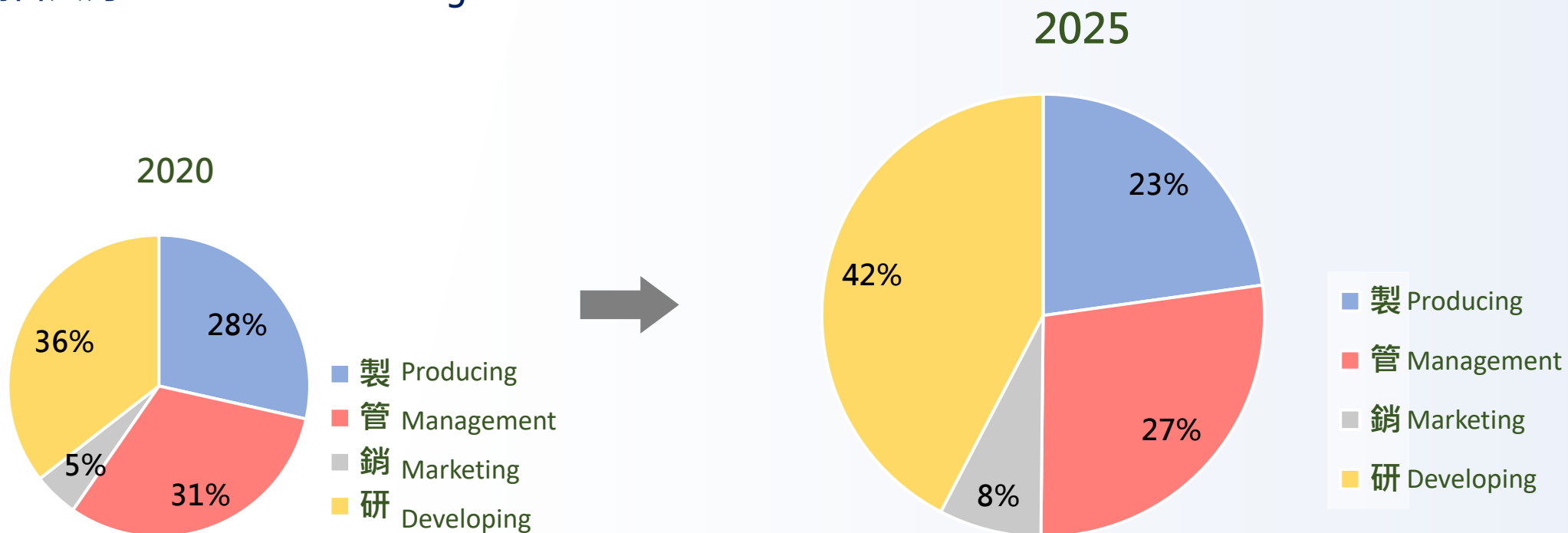
研發人員所在地

Development team by location

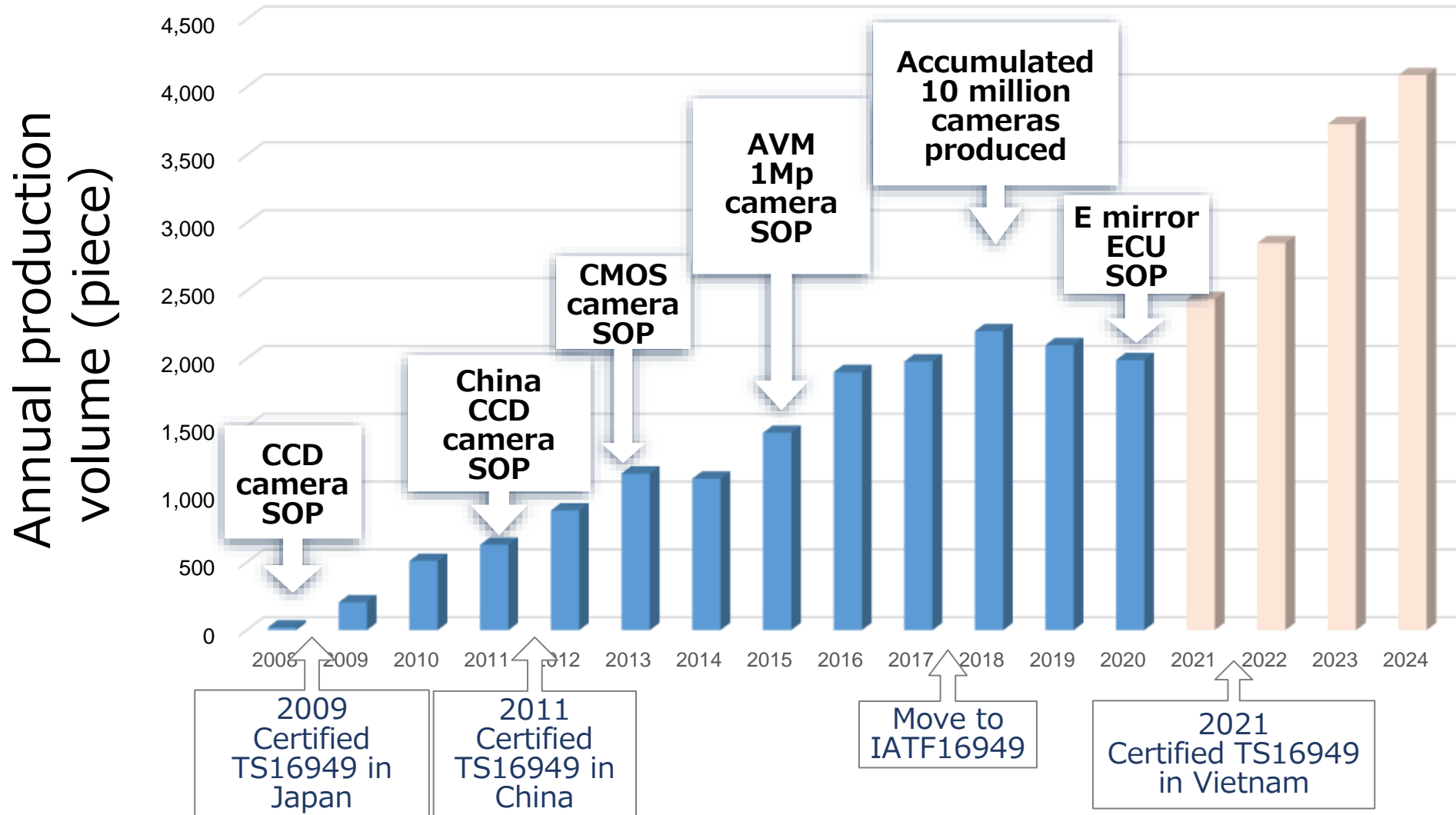


車用電子未來人力規劃 Human resource plan

- 研發人員將由現有佔比36%提升至42%。 Increase R&D team to 42%.
- 增加銷售人力。 Increase marketing team.



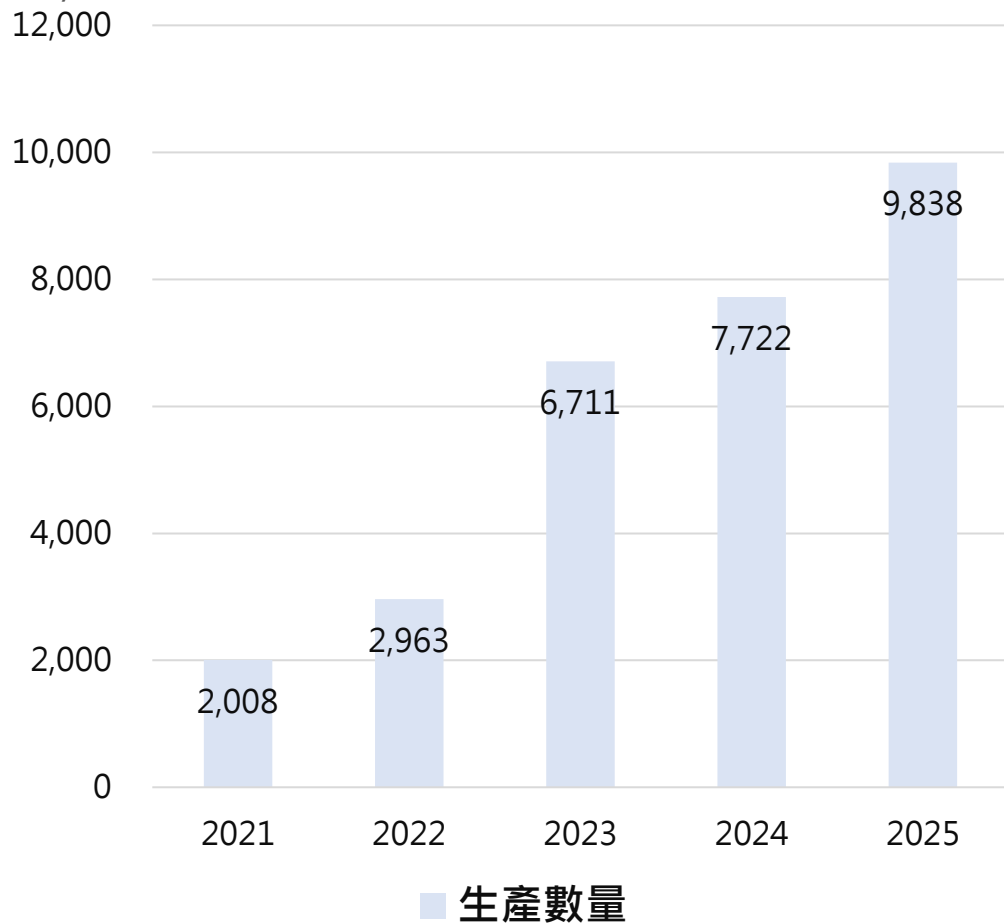
車用攝像頭生產量 Production Volume



車用鏡頭產能規劃 Camera produce capacity planning

單位：M/USD

單位：千顆



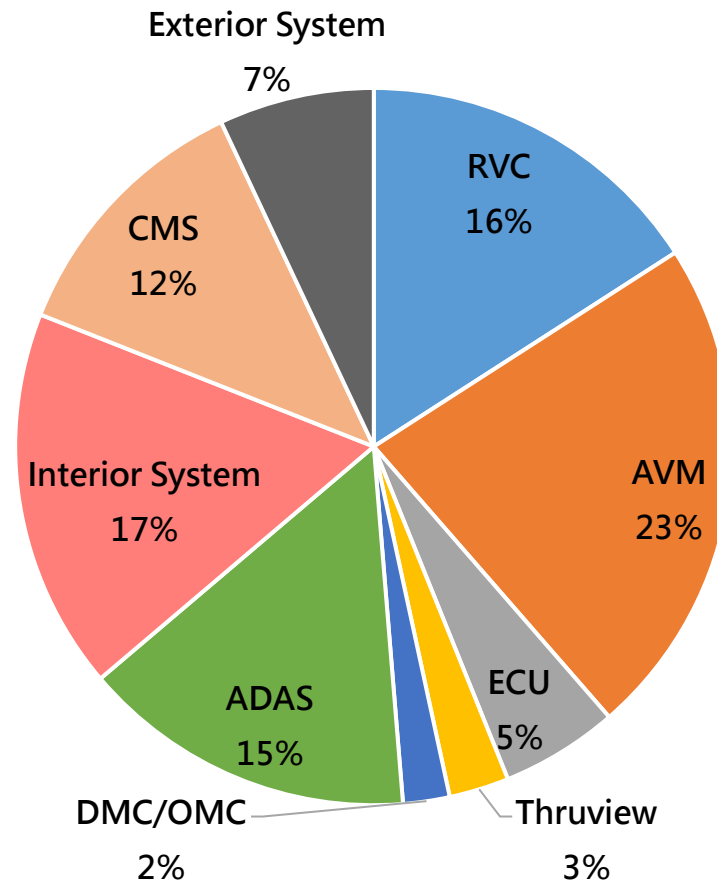
嘉興廠+無錫廠+越南廠+台南廠
 Jiaxing+Wuxi+Vietnam + Tainan factory

2025產能目標1000萬顆

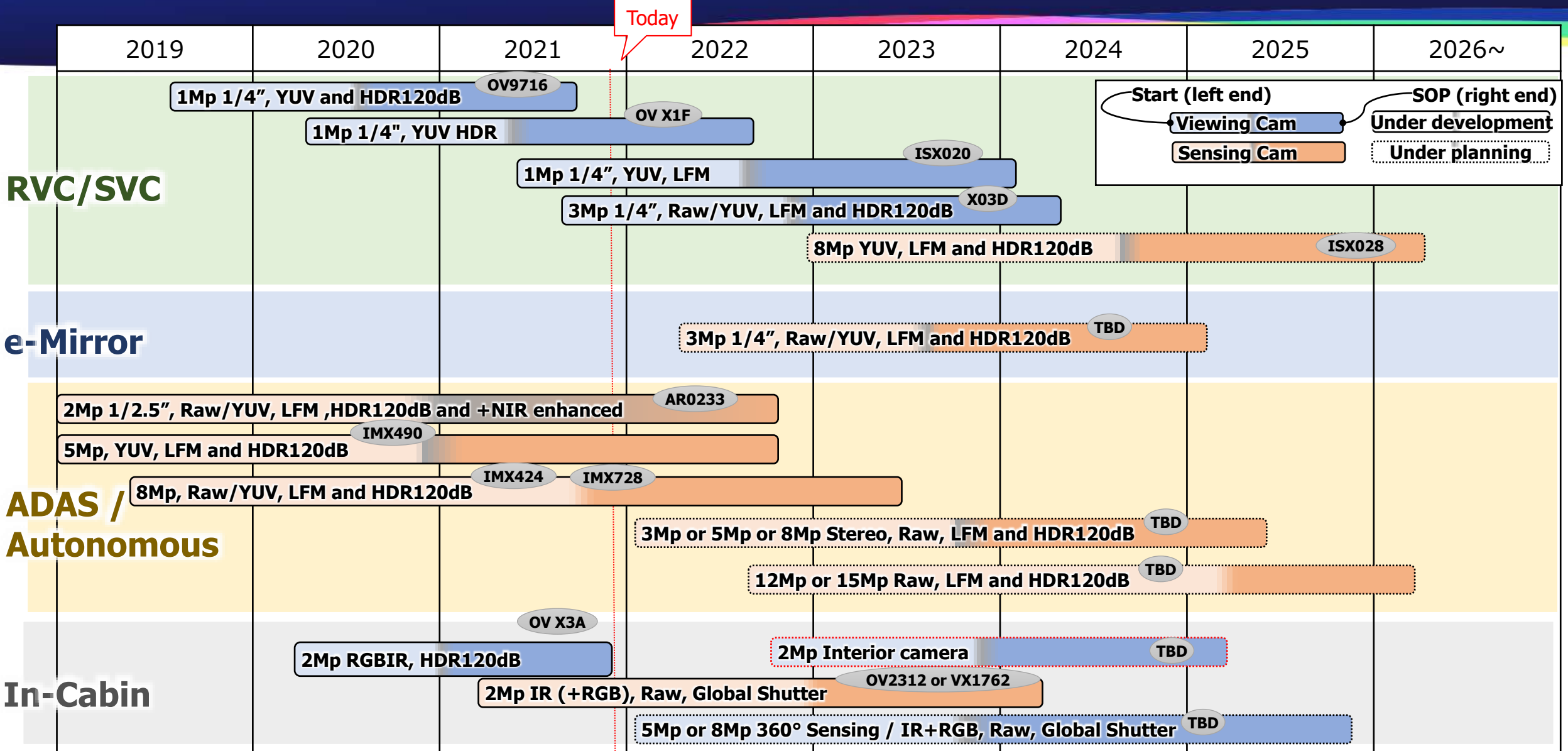
2025 target 10 millions camera produce capacity



計劃2025營業額依產品別分佈 2025 products by function

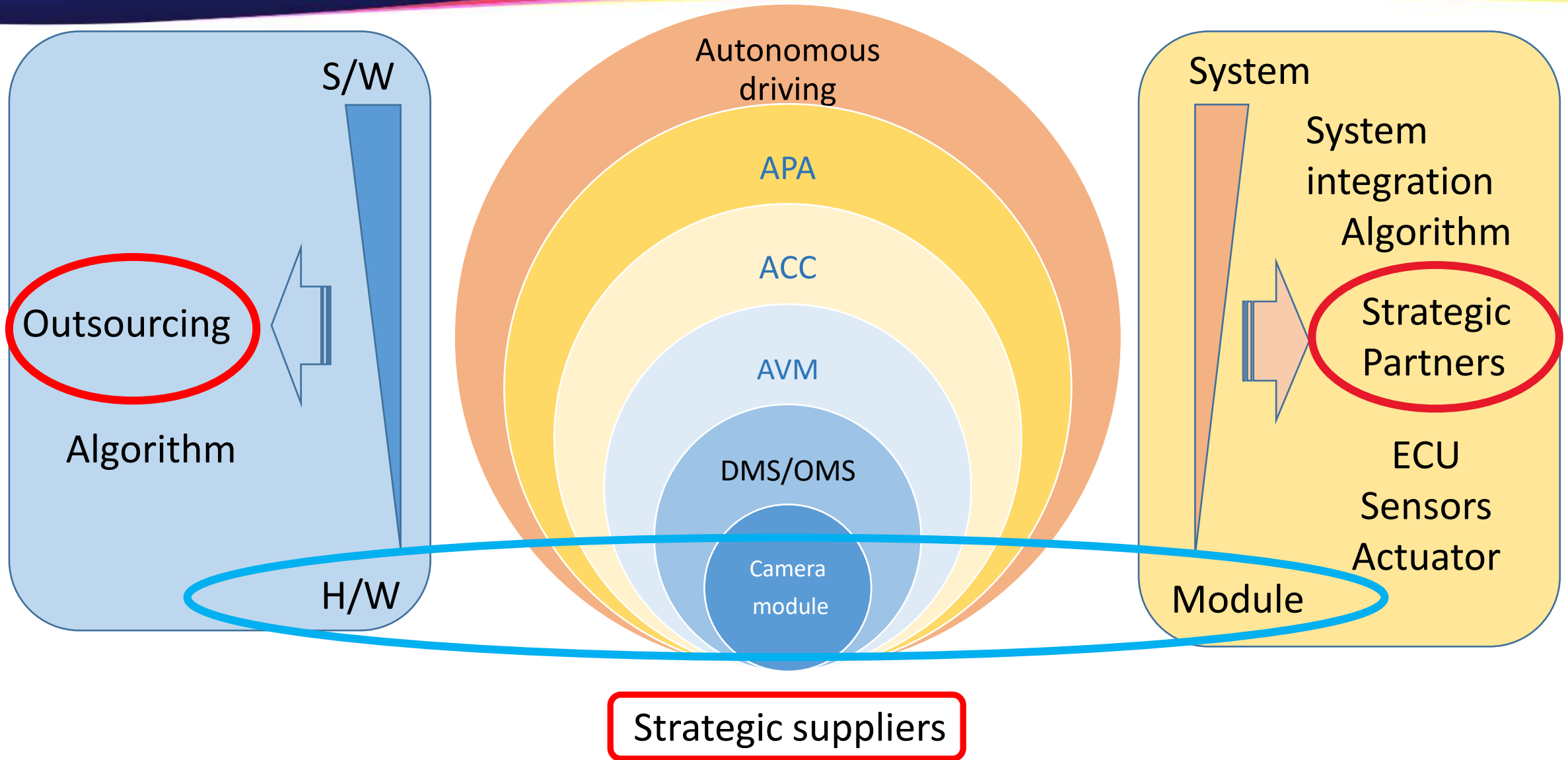


產品計畫 Product Roadmap

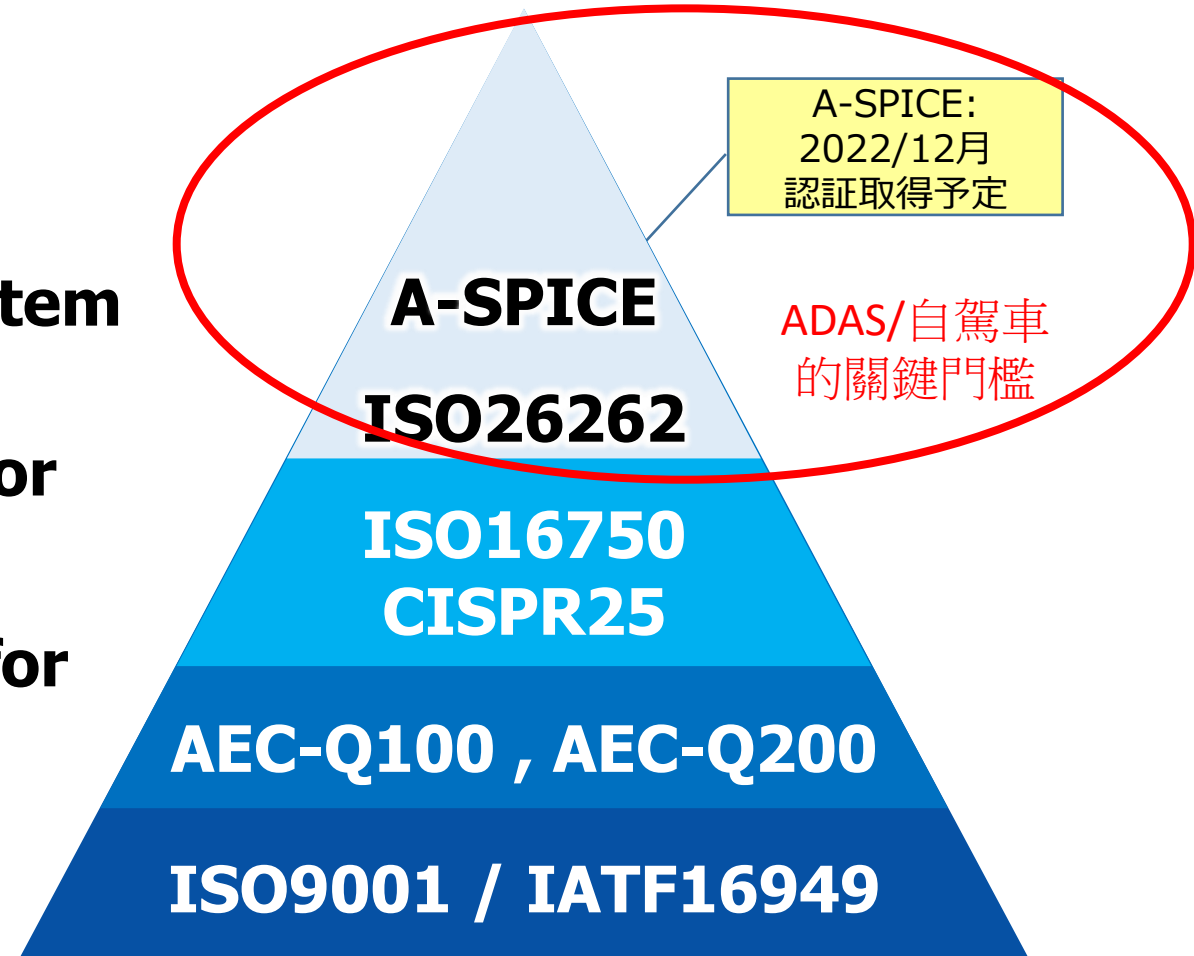


Start (left end) → Viewing Cam (Under development)
 Sensing Cam (Under planning)
 SOP (right end)

研發發展方向 – Develop strategic partners



- ☆ **A-SPICE: Software standard for automotive dedicated**
- ☆ **Functional safety standard for system**
- ☆ **Reliability of industrial standard for automotive camera assembly**
- ☆ **Reliability of Industrial standard for device components**
- ☆ **Quality management system for factory site**



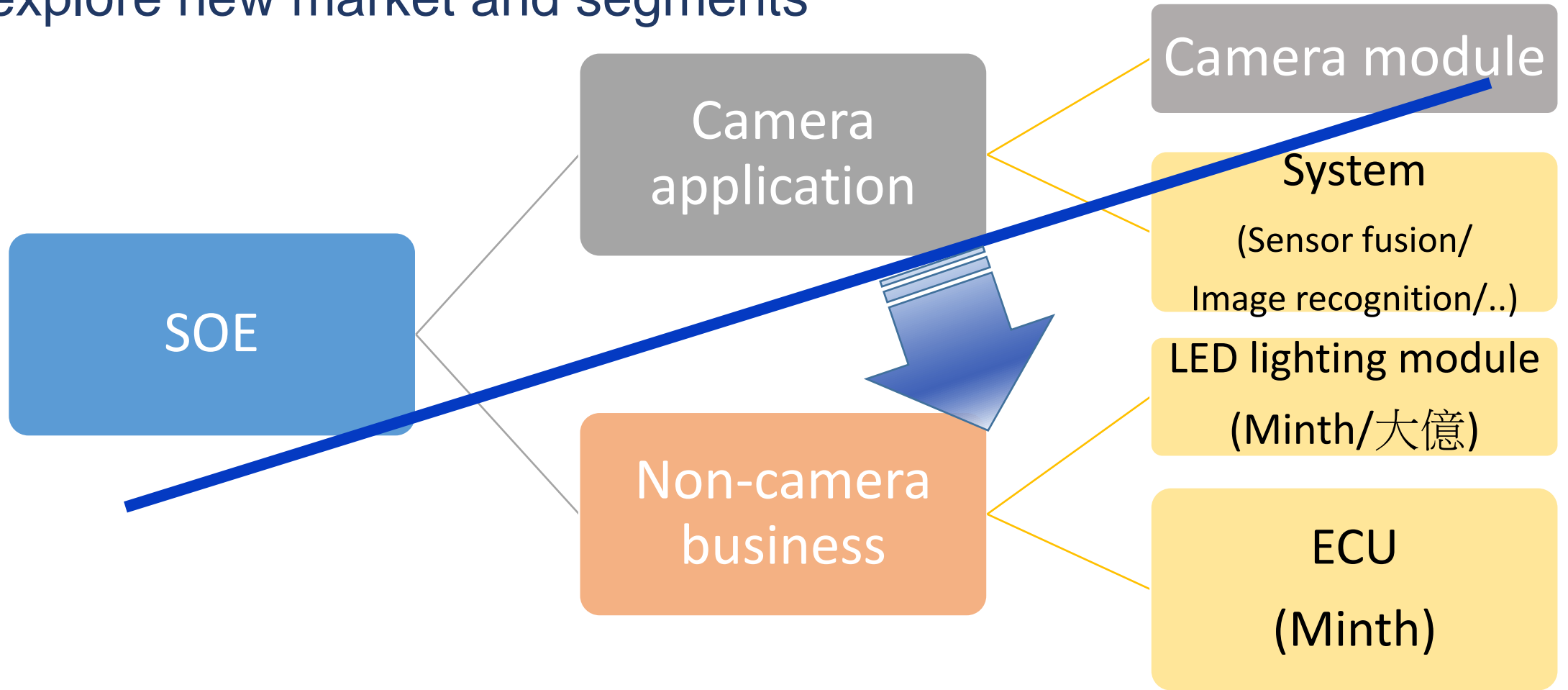
Automotive Cameras



E-mirror ECU



◆ To explore new market and segments



台南新廠建設



7/22
現場勘查



8/F~9/10
廠房圖紙規劃



10/20~25
車間放樣動工



11/30
五樓機房排水工程

12/30

五樓機房空調設備與工程



2022/01

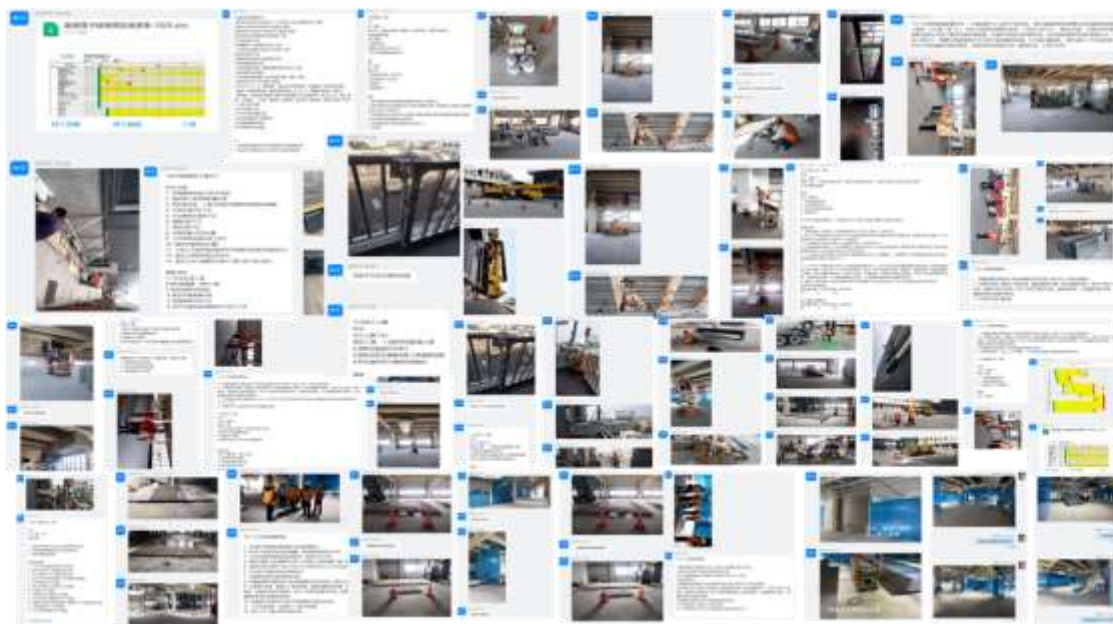
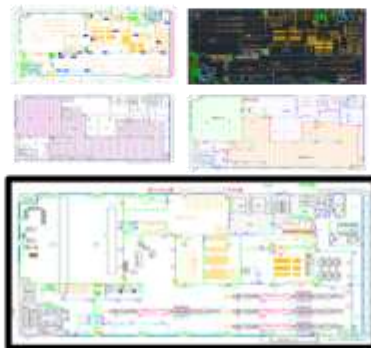
1. 廠房完成裝修
2. 設備進度進駐

2022/02

1. 內部檢討與檢修工程
2. 廠房竣工



- 千級無塵室
- 潔淨車間與倉庫區域
- 人流/物流動線
- 水電氣工程規劃
- 員工衣鞋更換與休息區



策略目的:

滿足8M攝像頭生產要求
 應對北美關稅/貿易戰
 策略合作(大億集團)
 技術保存
 現地自動化能力的運用
 Covid-19對應

Explore and get new business of LED lighting module



Logo



Grill illumination



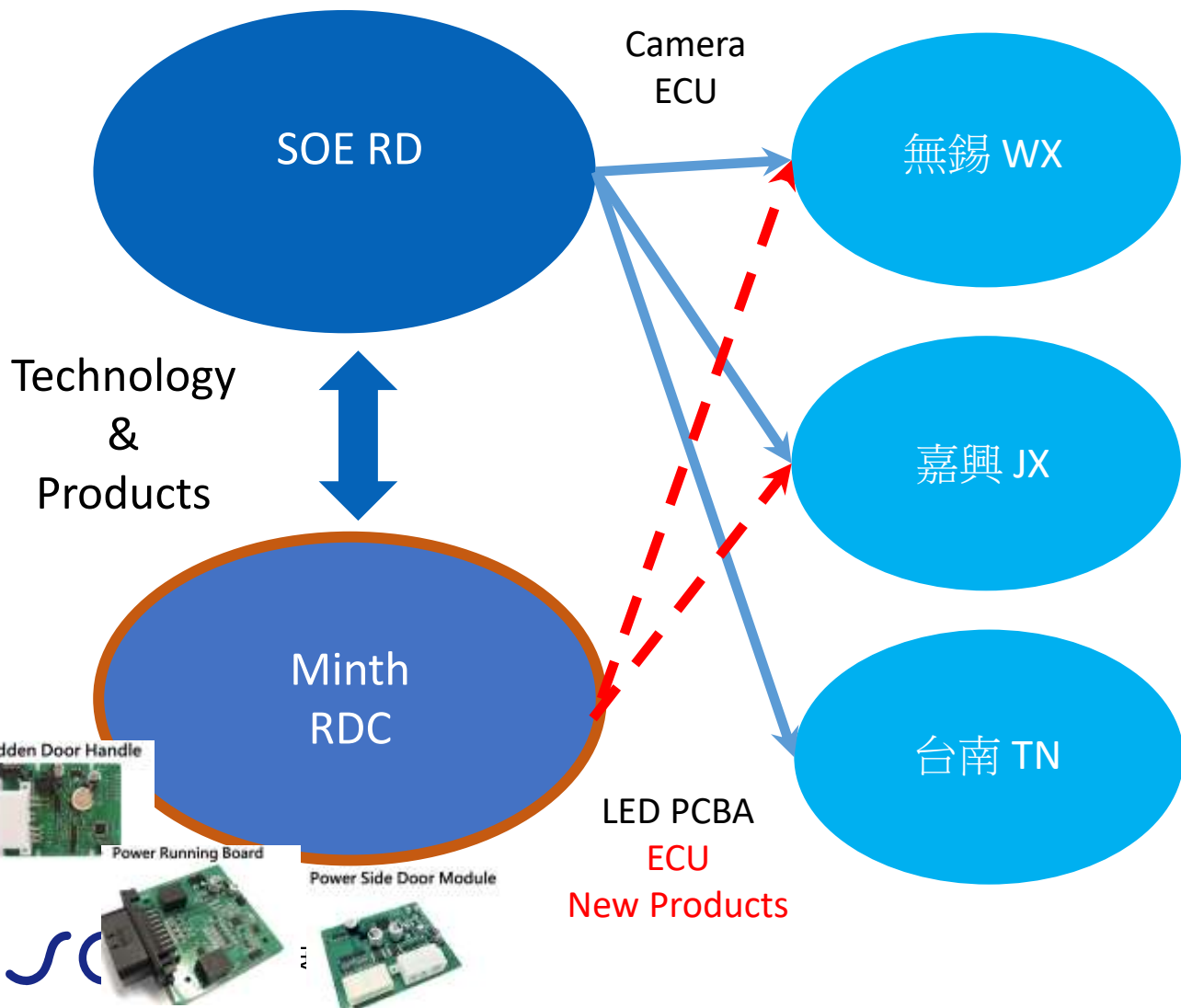
Scuff plate illumination

Side garnish illumination

- Where is our team? (RD/PM/Q/MFG/...)
- Who should be responsible?
- What kind of knowledge and tech we need?
- What investment we need to do?

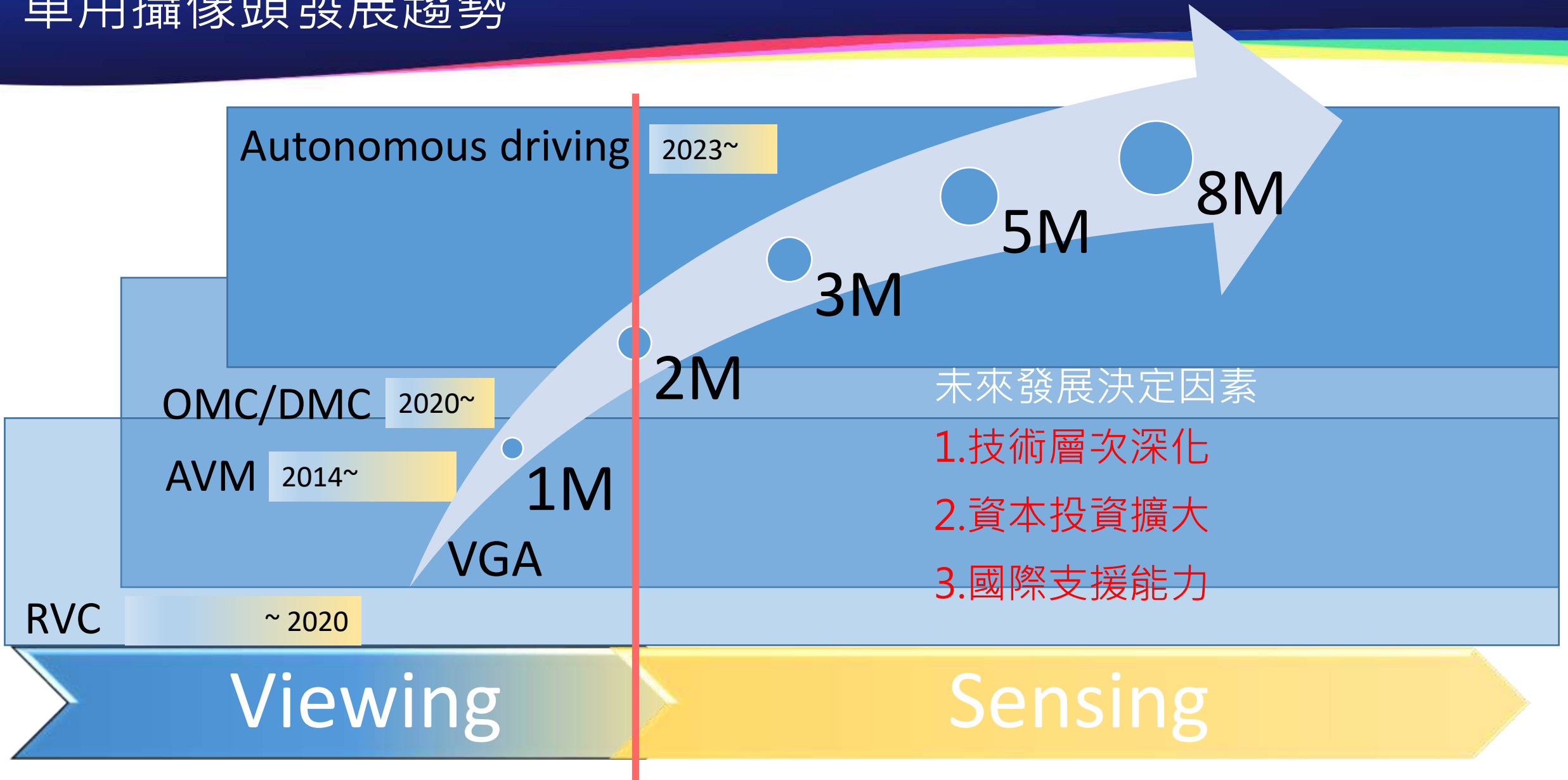
各廠產品搭配

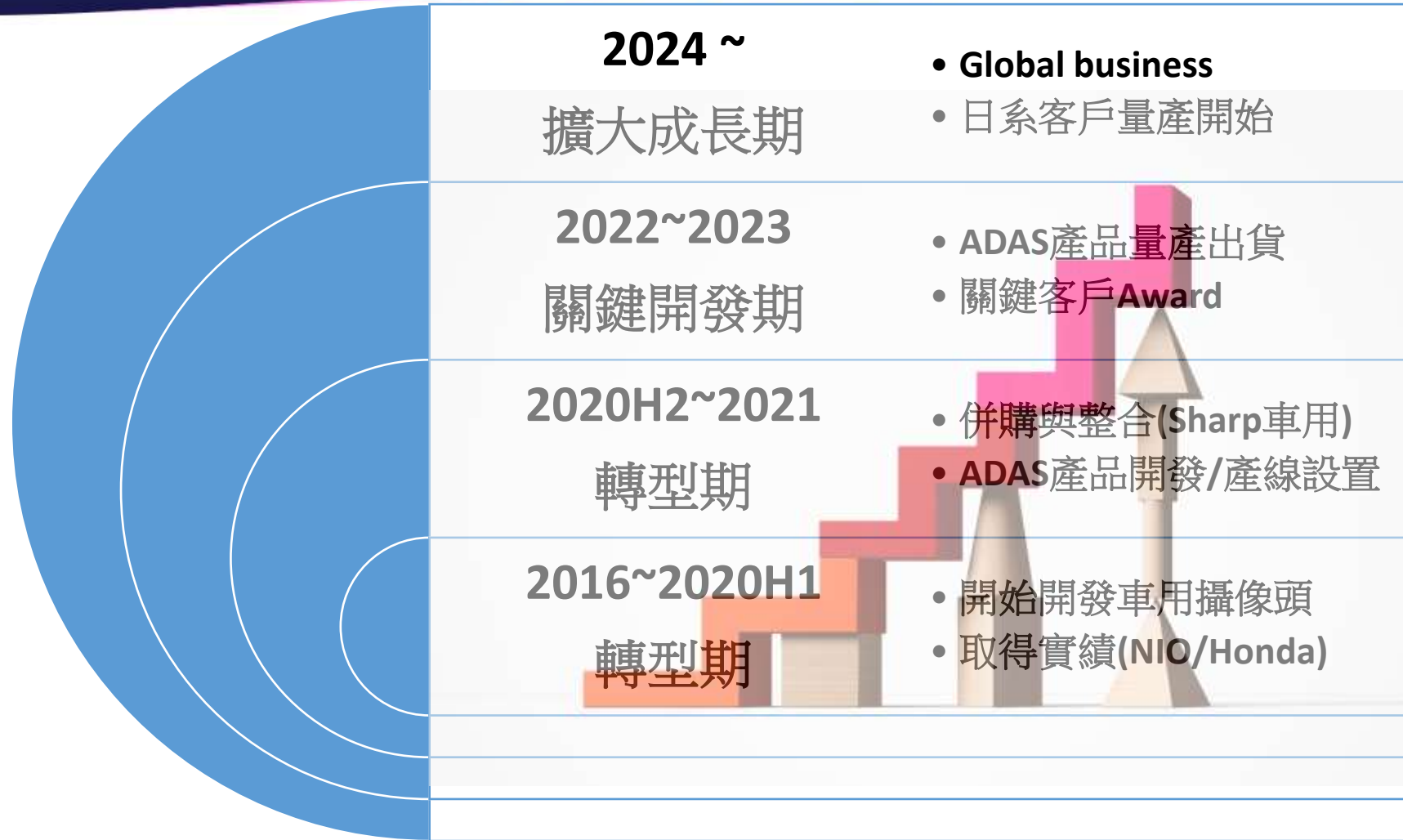
與敏實集團擴大合作



Camera	LED PCBA	ECU	New Product
✓		✓	TBD
✓	✓	✓	TBD
✓	✓		NA







Q&A