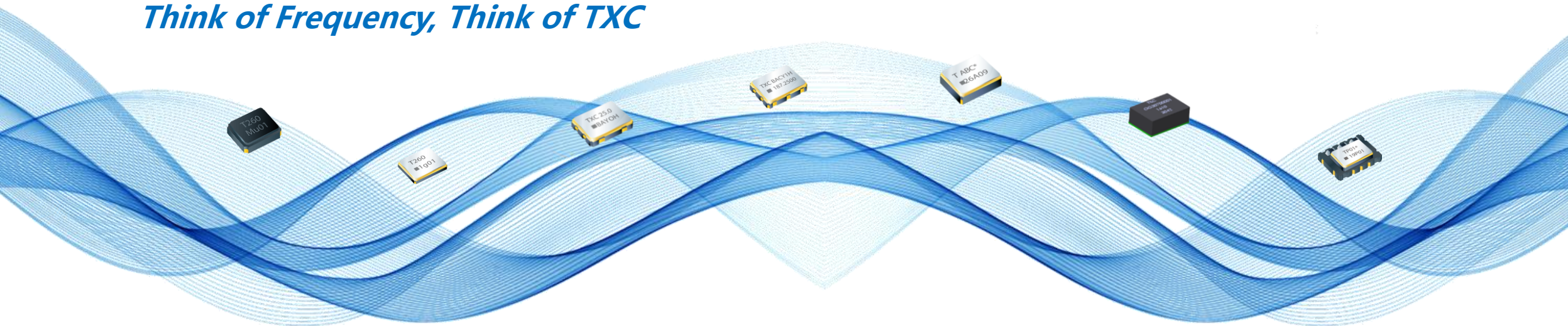


TXC

Making Every Connection Better


Precise Clock for Seamless Synchronization & Ultimate Data Transmission

Think of Frequency, Think of TXC



TXC簡介



-  **40 Years in Timing Industry**, Founded in 1983 & Headquarters in Taiwan
-  **Listed in Taiwan Stock Exchange**, Since 2000
-  **Ranked No. 1 in Worldwide Timing Market**, QYR 2023, Jul
-  **Ranked No. 1 in Worldwide MHz Crystal Market**, QYR 2023, Jul & TXC Shipment
-  **Preferred Supplier for Tier 1 in Network Infrastructure Market**, 2008 ~ Present
-  **Global Ranking No. 3 in Automotive Market**, 54% YoY, 2022, QYR 2023, Jul
-  **Timing Industry Leader in Product Miniaturization**, 2012 ~ Present
-  **Smallest and Innovative Devices Integration by Ceramic Packaging**, Since 2013

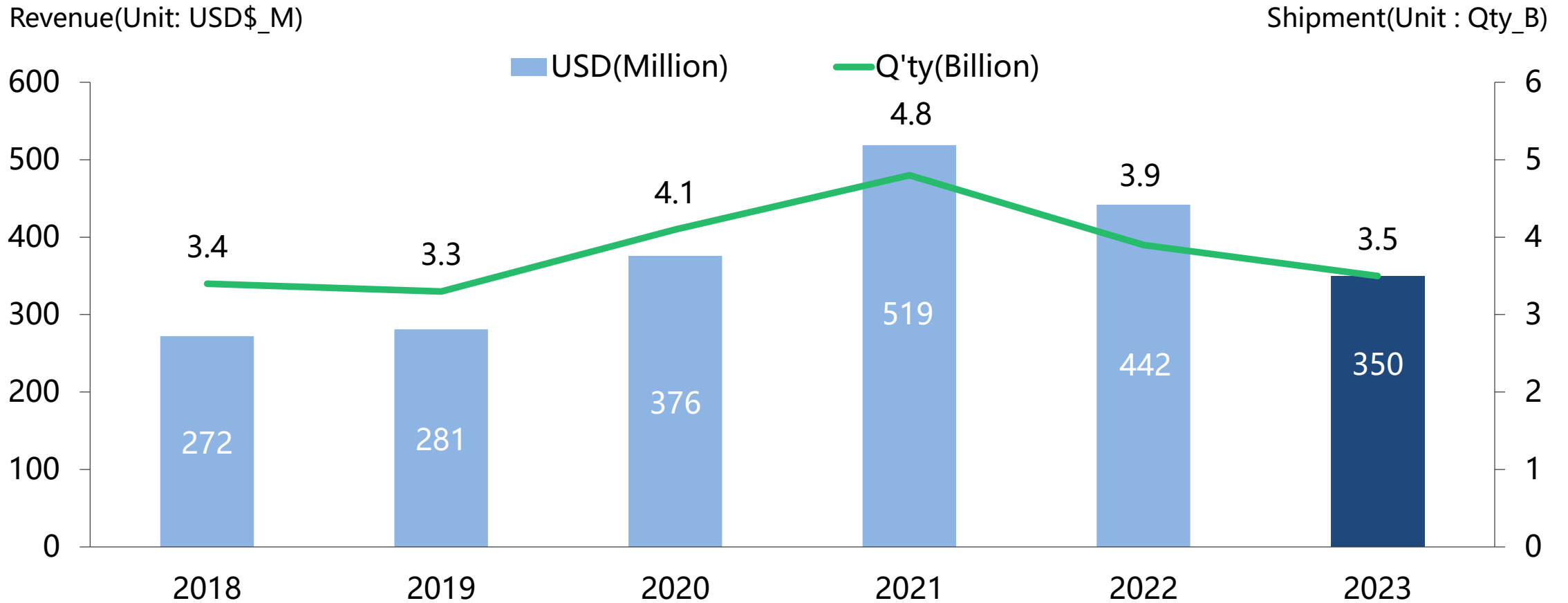
頻率元件世界排名

Rank		Vendors	Revenue (Million_USD)			Market Share (%)	
2021	2022	Company Name	2021	2022	YoY%	2021	2022
1	1	TXC	\$519	\$442	-14.8%	11.7%	11.1%
2	2	Epson	\$425	\$379	-10.7%	9.6%	9.5%
3	3	NDK	\$366	\$352	-3.9%	8.3%	8.8%
4	4	KCD(Kyocera)	\$359	\$311	-13.4%	8.1%	7.8%
7	5	Sitime	\$218	\$283	29.6%	4.9%	7.1%
5	6	KDS	\$338	\$268	-20.6%	7.6%	6.7%
6	7	Microchip	\$222	\$226	2.1%	5.0%	5.7%
8	8	TKD	\$176	\$128	-26.8%	4.0%	3.2%
11	9	Rakon	\$121	\$114	-5.9%	2.8%	2.9%
13	10	Hosonic	\$113	\$110	-2.2%	2.6%	2.8%
Other Companies			\$1,565	\$1,375	-12.1%	35.4%	34.5%
Total Revenue			\$4,422	\$3,988	-9.8%	100.00%	100.00%

Source: QYR Research Jul. 2023

歷年營收與出貨

Organic & Sustainable Business Expansion



扮演關鍵腳色支持各項應用場景所需的頻率元件



Quartz offers the most Clear & Low Noise Clock to make every Connections Better

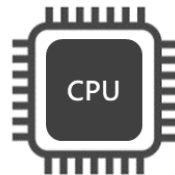
Clock Reference/Generation

Radio Frequency



5G NR
GPS
Wi-Fi 6/BT
NFC
UWB

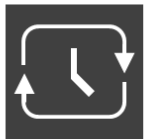
Electronic Devices



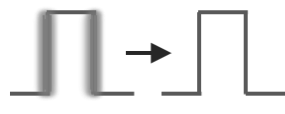
Interface
GPU/MCU
PMIC
DRAM
USB

Clock Synchronization/Attenuation

Network Infrastructure & Enterprise Devices



SyncE & IEEE 1588



Access Network
Front/Mid/Backhaul
Core Network
IDC
Optical Module



Crystal

Seam Seal



Glass Seal



Tuning Fork



Temperature Sensor Crystal (TSX)



Oscillator

Crystal Oscillators (XO)

CMOS



Differential



Programmable



Voltage Controlled Oscillators (VCXO)



Temperature Compensated Oscillators (TCXO)



Temperature Compensated Oscillators (S3TCXO)



Oven Controlled Oscillators (OCXO)



全球佈局

- ◆ R&D
- ◆ Manufacture Plant
- ◆ Sales Operation
- ★ Lab Service

3

R&D Centers

15

Sales Office

4+1

Plants

Great Asia

- ★ Taiwan ◆◆◆
- Shin Yokohama ◆
- ★ Osaka ◆◆
- Korea ◆◆

North America

- ★ San Jose ◆◆
- Brea ◆◆
- Toronto ◆◆

Europe

- ◆ Frankfurt

China

- ★ Ningbo ◆◆◆◆
- Chongqing ◆◆◆◆
- ★ Shenzhen ◆◆◆◆
- Wuhan ◆◆◆◆
- ★ Shanghai ◆◆◆◆
- Suzhou ◆◆◆◆
- Beijing ◆◆◆◆

3,500 Employee

生產據點

1991

✓ Automotive IATF 16949



Taiwan, Ping Cheng (PCF)

• MHz Crystal

• TSX

• XO

• TCXO

• VCXO

• OCXO

1999

✓ Automotive IATF 16949



China, Ningbo (NGB)

• kHz/MHz Crystal

• TSX

• XO

• TCXO

2013



China, Chongqing (CKG)

• MHz Crystal

• TSX

2021

✓ Automotive IATF 16949



China, Ningbo (TETC)

• kHz/MHz Crystal

• XO

2024 Under Construction

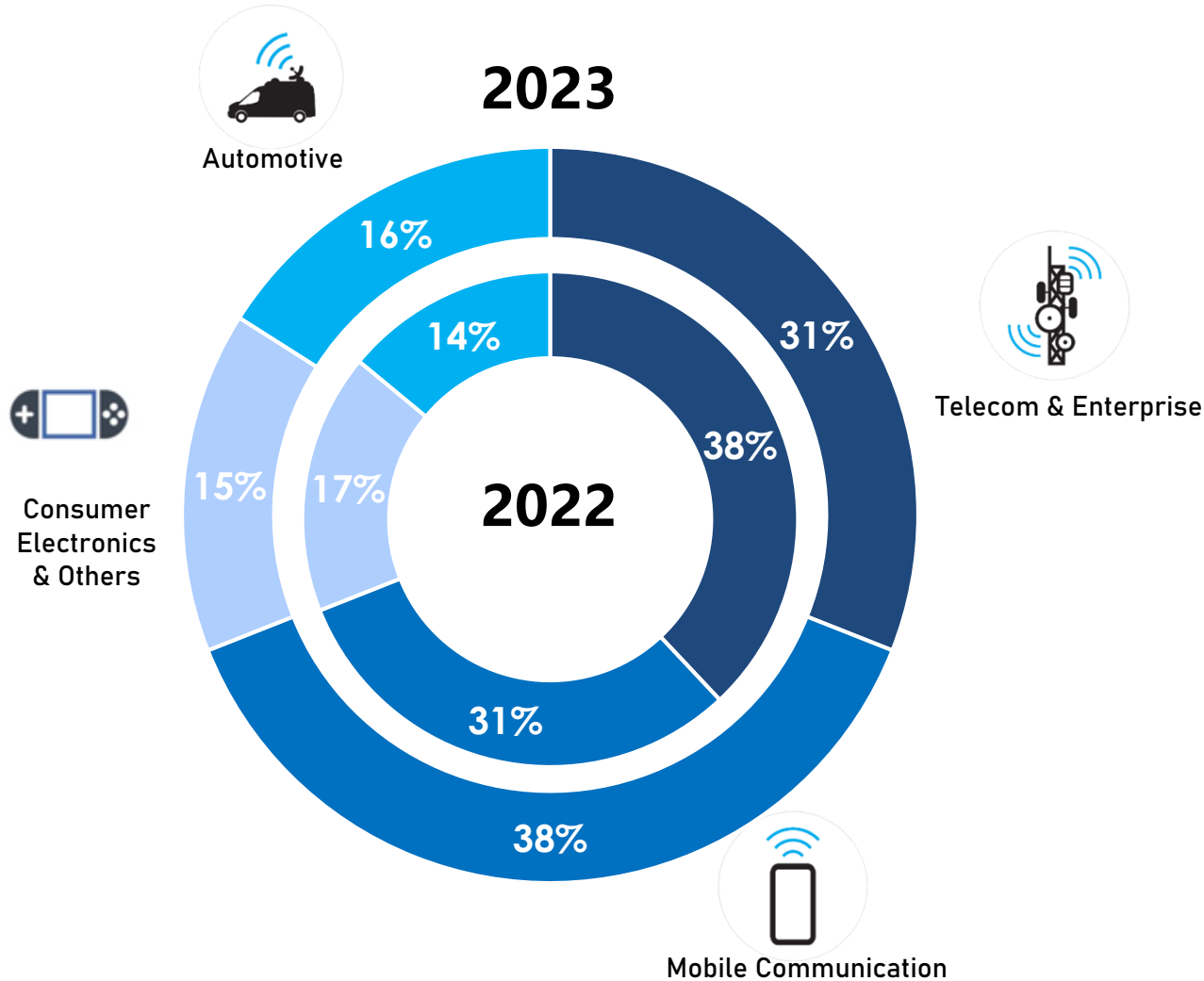


Indonesia, Surabaya (SUB)

- 4+1 manufacturing facilities
- 200+ automated production lines
- 430M+ monthly capacity(Timing Devices)
- 3 R&D centers (PCF, NGB & CKG)
- 400+ engineers

營收比重

Diversified Market & Customer Matrix



Key Diversified Growth Drivers

5G Mobile Devices

Miniature Product , High Frequency Products

5G Telecom & Infrastructure

Precise & Ultra Low Phase Noise Oscillators

High Speed Datacom

Ultra High Frequency & Ultra Low Phase Jitter Oscillators

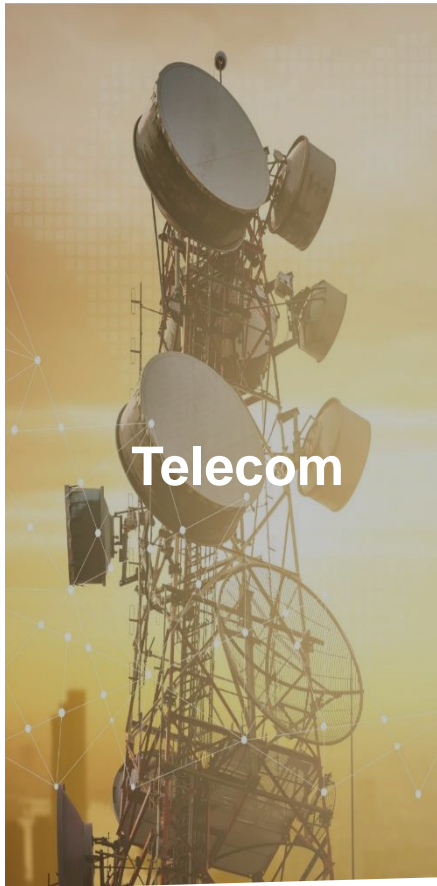
Vehicle Electrifications

Mass Adoption on Crystal & Oscillator for Autonomous Driving

營運聚焦

Provide the Cleanest & Most Stable Clock source to every hearts of Electronics

Precise Stability & Ultra Low Phase Noise & Jitter



Telecom

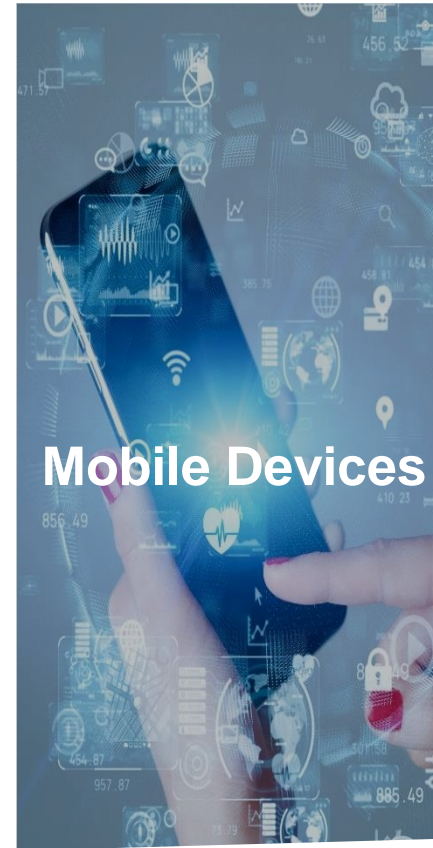


Datacom

High Frequency, Ultra Stability & Miniature

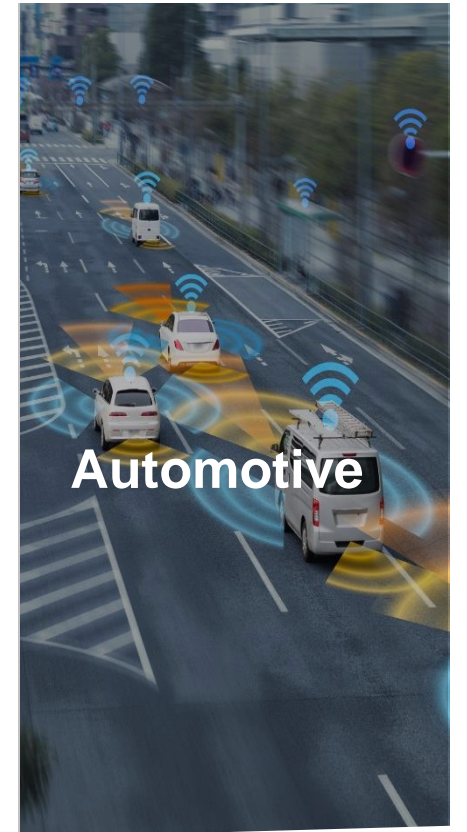


Connectivity



Mobile Devices

High Reliability & Quality

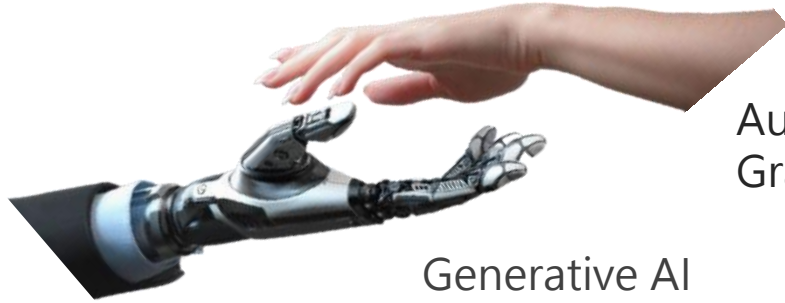


Automotive

AI生態系帶動高階石英晶體與晶振需求

應用發展: 高速運算/高速傳輸/移動網絡

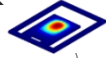
Connecting
People



Generative AI

XTAL/XO

Photo Blank
Technology



Ultra
Miniature



Automotive
Grade



Advanced
Performance



Ultra High Frequency/Stability
Ultra Low Phase Noise/Jitter

Automotive



5G Infrastructure

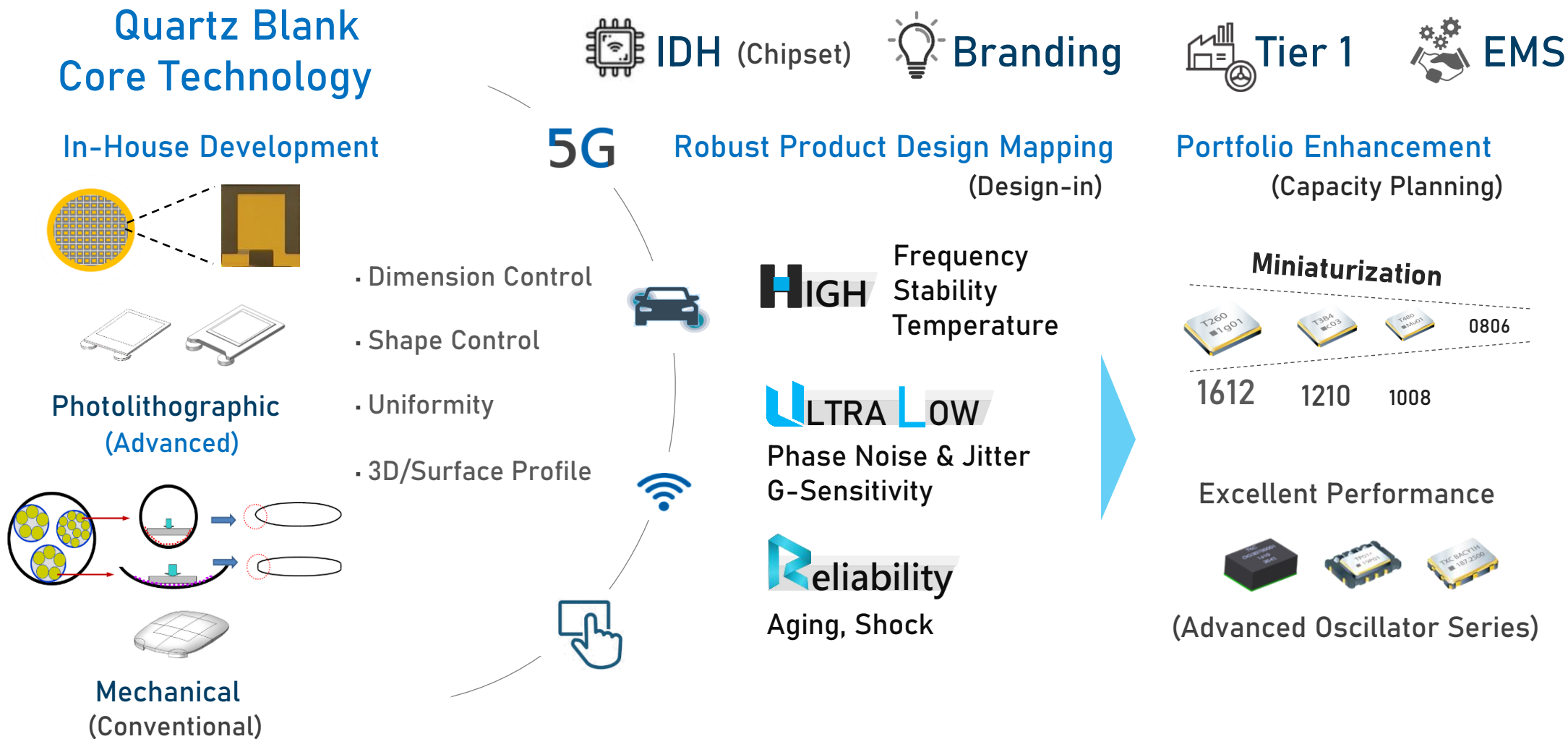


Mobile Communication

AIoT Industry

強化核心競爭優勢

持續投資, 優化產品設計核心發展技術



資料傳輸承載數量增長帶動無窮商機

通訊時代升級拉升高階產品成長動能

ThermSym Hercules Chronos Eros

OCXO
 Industry-wide
 Smallest(5x3 mm)
 ppt Level
 -40 to 105°C OT

Infrastructure
 +20%
 RU/DU/CU/Core/RAN

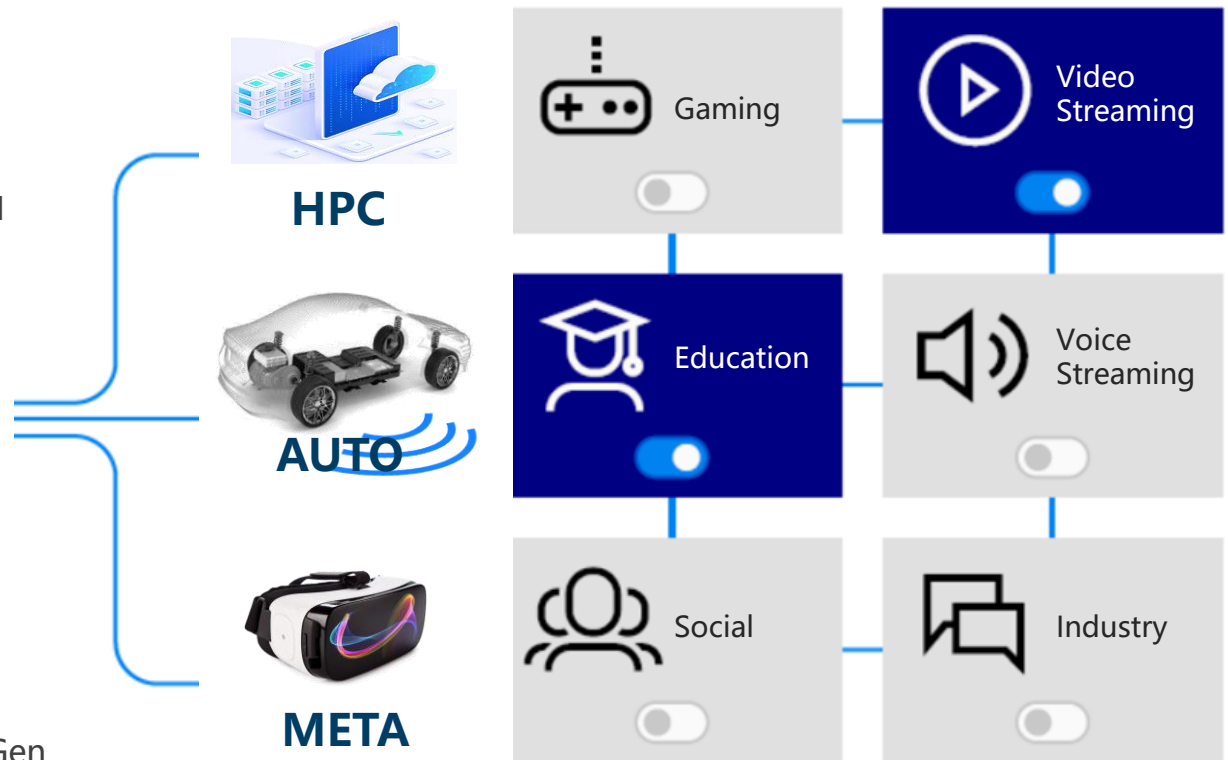
Data Computing
 +25%
 Server/Switch/IDC/Edge

S3-TCXO
 -40 to 105°C OT
 Standard PKG
 7050/5032

CMOS/Diff XO
 Portfolio
 Optimization
 Ultra Low PN & PJ

Optical/Smart NIC
 +26%
 100/200/400G/Next Gen

Mobile Network Traffic Growing **3 – 5 times** in the Next 5 Years



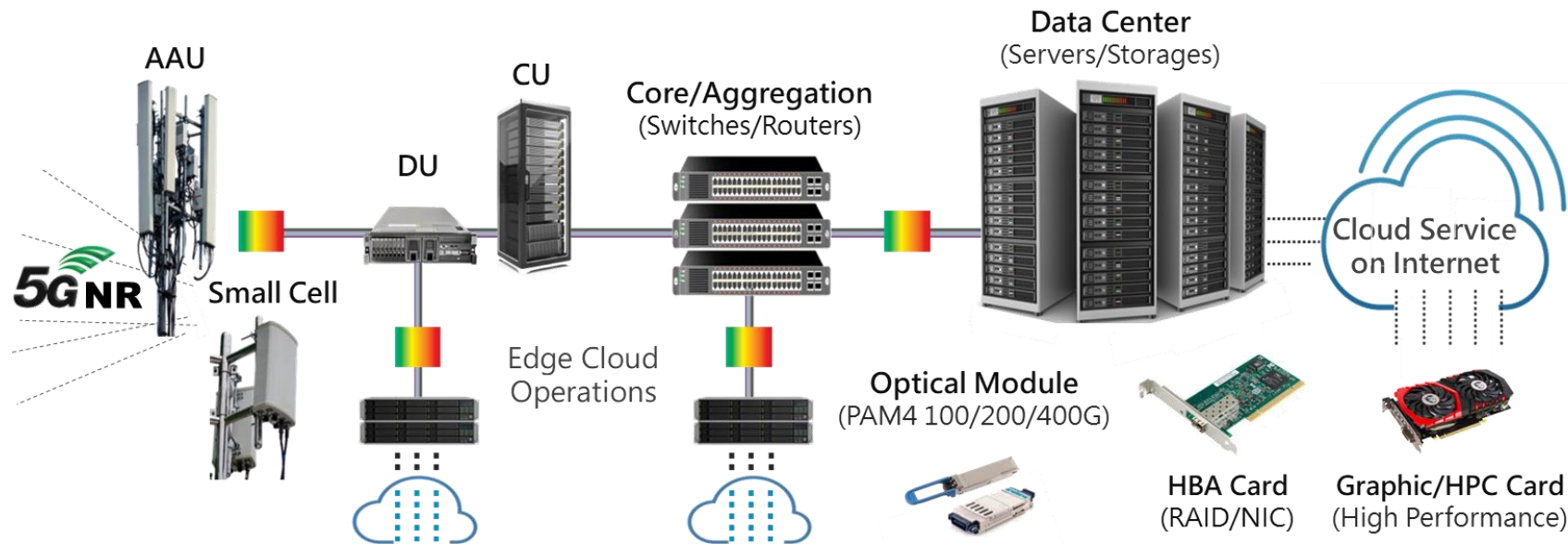
Data Traffic (EB per Month): 2021: **84**, 2024: **255**, 2027: **368**

Source: Ericsson Mobility Report, June 2023

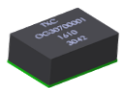
+% CAGR of equipment or device sales revenues projection during 2022-2025

5G基礎網絡建設與企業高階方案規劃

Extra High-Frequency, Ultra-Low Phase Noise & Jitter & Stability Performance



High Stability
L T R A



OCXO

Stratum 3E & 24hrs Holdover
5x3 mm, ± 3 ppb, 105°C
Frequency up to 1.5G



Precise TCXO

± 50 ppb, 105°C
Frequency up to 1.5G



VCTCXO

± 280 ppb, 105°C, -170dBc/Hz

Low PJ & PN
L T R A



VCXO

Phase Jitter@12k - 20MHz, 50 fs
Phase Noise@10Hz, -80dBc/Hz



Diff XO

Phase Jitter@12k - 20MHz, 50 fs
 ± 20 ppm, 105°C



CMOS XO

Phase Jitter@12k - 20MHz, 50fs
Phase Noise@1MHz, < -170 dBc/Hz



Programmable XO

Phase Jitter@12k - 20MHz, 70 fs
Frequency up to 1.5 - 2.1GHz
(XO Series Selection for fast L/T)

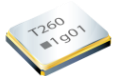
終端智能裝置高頻與小型化方案發展

Miniature, Higher Frequency & Ultra Low Phase Noise



HIGH Frequency Accuracy & Stability

World's Smallest Series



MHz Crystal

Miniature, 1.0 x 0.8 (mm)
8 – 320 MHz

1612

1210

1008

Next 0806



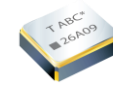
TSX(TH+Xtal)

Miniature, 1.6 x 1.2 (mm)
19.2 – 76.8MHz



XO(CMOS/Differential/PLL)

PJ@12k – 20MHz, 0.05 – 0.3 ps
Low EMI CMOS XO



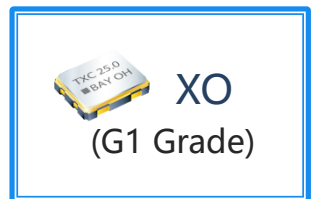
TCXO(CMOS/Clipped)

PN@100kHz, -166 dBc/Hz
Stability, ±0.5 ppm

更智能化的車輛與電動車 重點應用發展

定義未來汽車領域成長動能

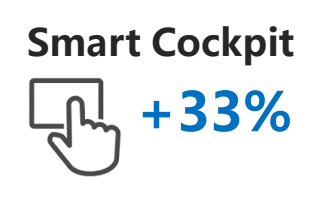
Automotive Grade, AEC-Q100, AEC-Q200 & Other Specified Compliances



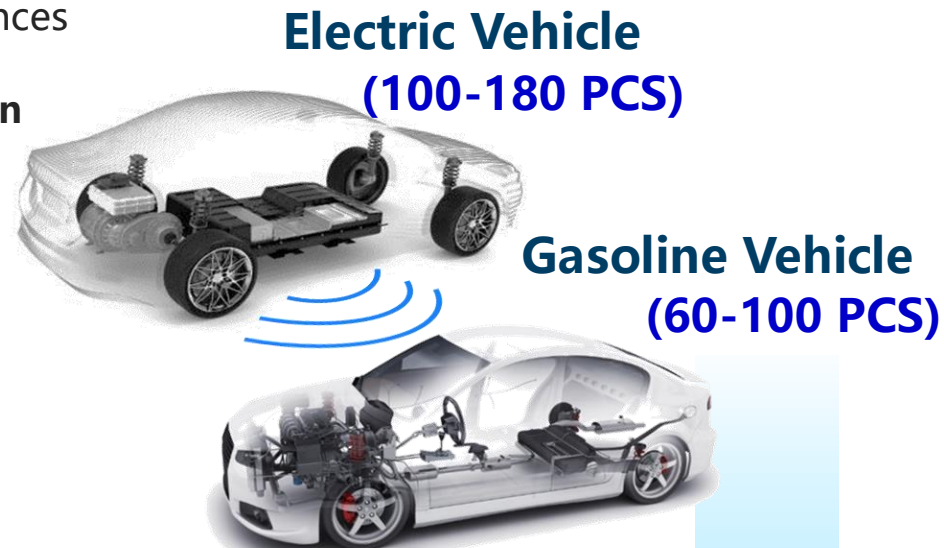
Autonomous
+43%



Safety & Motion
+16%



+% CAGR of TXC Sales Estimation during 2022-2026



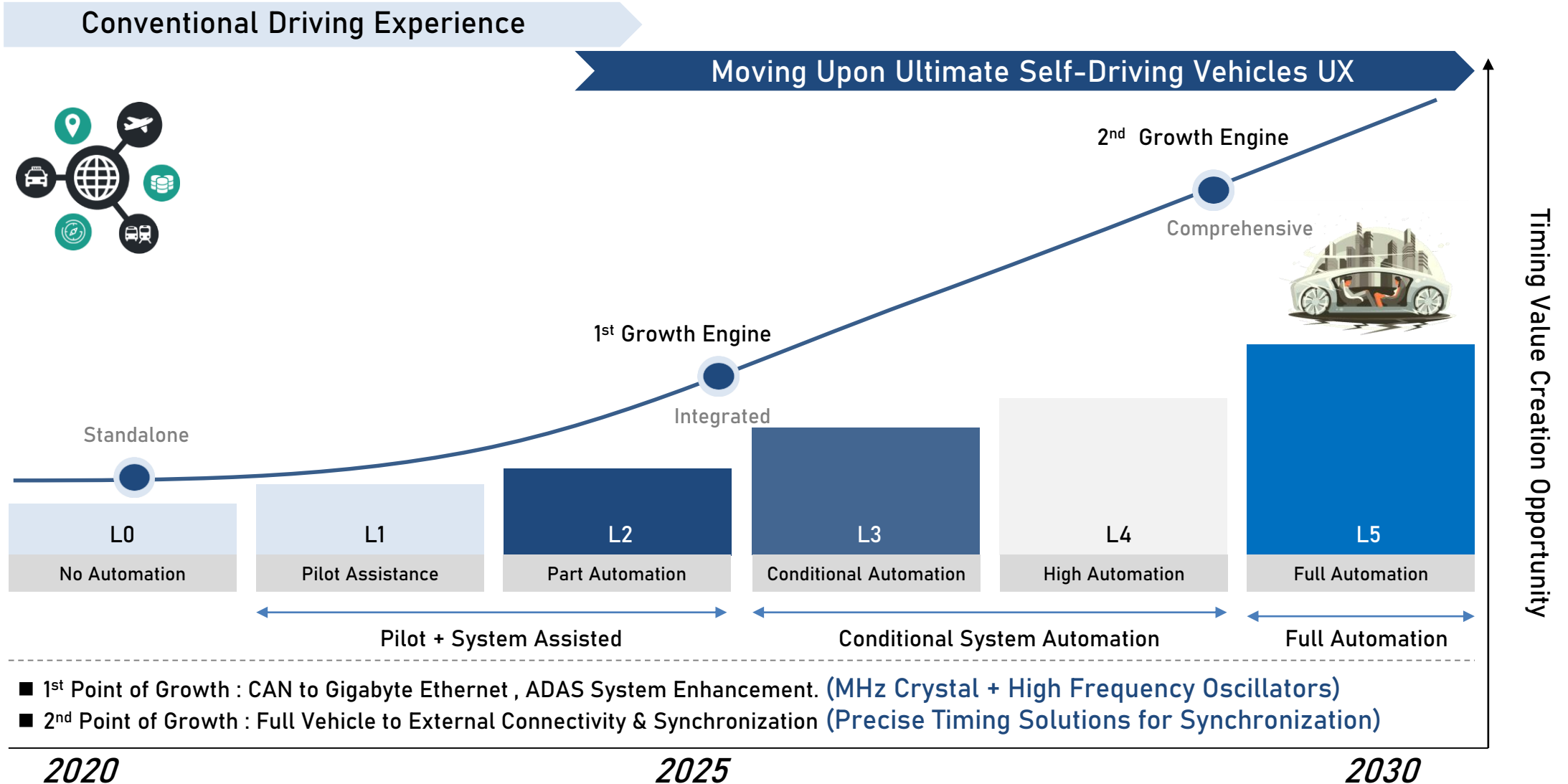
21%
2024

CAGR Electric Vehicle Market Sales Forecast, 2024 to 2029

2029

汽車電子成長重點領域 – 自動駕駛升級

新科技帶動新成長動能



2024 資本支出



A+ Enhancements

- ✓ Core Technology
- ✓ Advanced Process



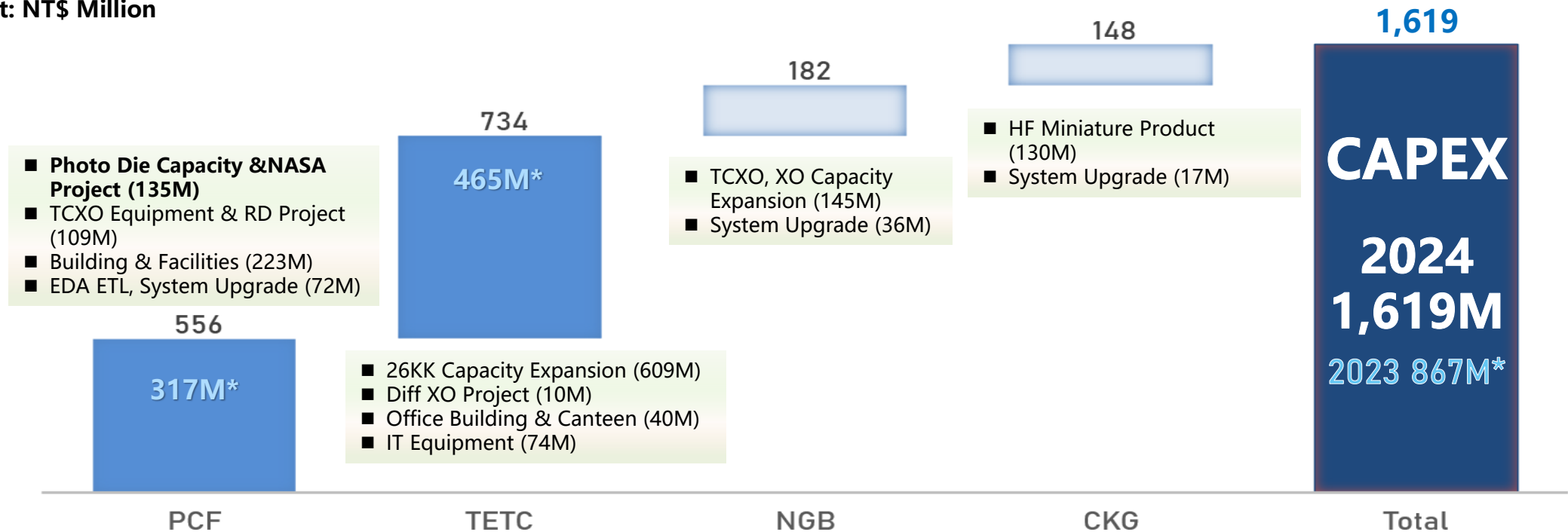
Smart Factory

- ✓ Green & Renew Energy



- ✓ Environment
- ✓ Social Responsibility
- ✓ Governance

Unit: NT\$ Million



*: 2023 deferred capex

綜合損益表

單位: 台幣百萬	Q1'24	Q4'23	QoQ	Q1'23	YOY
營業收入	2,754	3,040	-9.4%	2,298	19.8%
營業毛利	1,000	1,148	-12.9%	793	26.0%
營業費用	534	529	0.8%	448	19.2%
營業淨利	466	618	-24.7%	345	34.8%
營業外收入及支出	181	-124	246.9%	6	3119.0%
稅前淨利	647	495	30.8%	351	84.3%
稅後淨利	537	408	31.7%	287	87.3%
基本每股盈餘(新台幣元)	1.73	1.31	32.1%	0.93	86.0%
營業毛利率(%)	36.30%	37.75%		34.52%	
營業費用率(%)	19.39%	17.42%		19.49%	
營業淨利率(%)	16.91%	20.33%		15.03%	
稅前淨利率(%)	23.50%	16.27%		15.28%	
純益率(%)	19.51%	13.42%		12.48%	

資產負債表

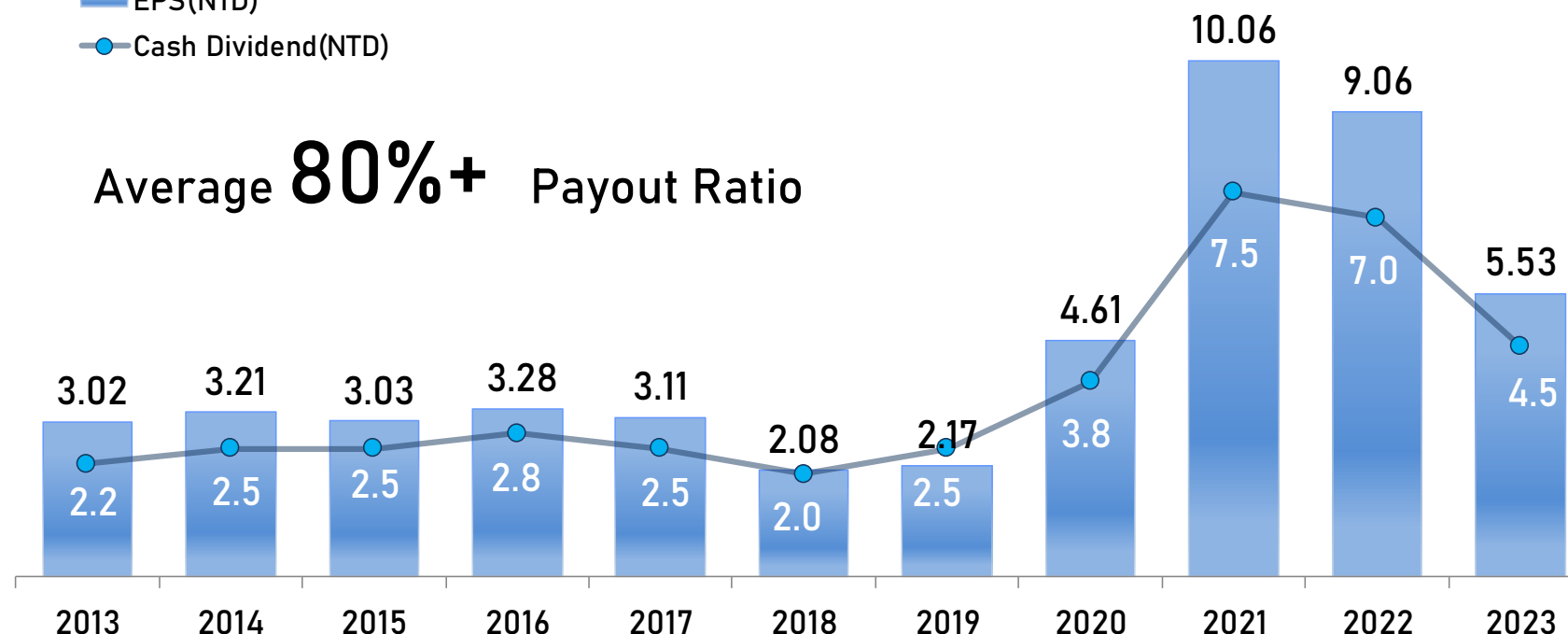
單位: 台幣百萬	Mar. '24		Dec. '23		Mar. '23	
項目	Amount	%	Amount	%	Amount	%
現金及約當現金	4,231	21.4%	4,204	22.3%	4,456	23.1%
應收票據及應收帳款	3,006	15.2%	3,255	17.3%	2,744	14.2%
存貨	2,662	13.4%	2,470	13.1%	2,711	14.1%
流動資產	11,519	58.2%	10,812	57.4%	10,830	56.2%
不動產、廠房及設備	5,798	29.3%	5,770	30.7%	6,181	32.1%
總資產	19,797	100.0%	18,822	100.0%	19,262	100.0%
流動負債	4,274	21.6%	4,768	25.3%	3,474	18.0%
非流動負債	2,798	14.1%	2,180	11.6%	2,957	15.4%
總負債	7,073	35.7%	6,949	36.9%	6,431	33.4%
合併股東權益	12,725	64.3%	11,874	63.1%	12,830	66.6%
平均收現日數	104		115		125	
平均銷貨日數	134		135		164	
平均銷貨日數 (不含房產)	121		122		149	
流動比率(%)	270%		227%		312%	
負債比率(%)	35.7%		36.9%		33.4%	
每股淨值(元)	41.08		38.33		41.42	
總資產報酬率(%)	11.4%		9.1%		6.1%	
股東權益報酬率(%)	17.5%		14.1%		9.1%	

每股盈餘與每股股利

穩健成長、維持高股利配發政策

— EPS(NTD)
— Cash Dividend(NTD)

Average **80%+** Payout Ratio



Unit: NT\$

Share Price

Payout Ratio(%)

2013	43.6	39.9	41.1	44.5	39.0	36.0	44.0	99.8	98.0	89.4	105.5
	72.8	77.9	82.5	85.4	80.4	96.2	115.2	82.4	74.6	77.3	81.4

以價值為基礎持續永續發展

致力於環境、社會和治理的持續提升



Top 6%~20% Listed Corporates of the 10th Corporate Governance Evaluation



Taiwan Best-in-Class 100



The Excellent Enterprise Award in Taoyuan City



IDB the 4th Gender Mainstreaming Benchmark Manufacturer



BSI Sustainability Leader Award



"Conform to 1.5°C temperature control target" label from Commonwealth Magazine



ISO 14064 Greenhouse Gas Emissions Verification



ESG Roadmap

- ISO 50001 Energy Management System Verification
- ISO 14067 product carbon footprint Verification
- 2030 RE30% , 2050 RE100% & Net Zero Carbon

Thank You

Think of Frequency, Think of **TXC**

