



巧新科技工業

投資輕量化的未來

SAI
SUPERALLOY

免責聲明

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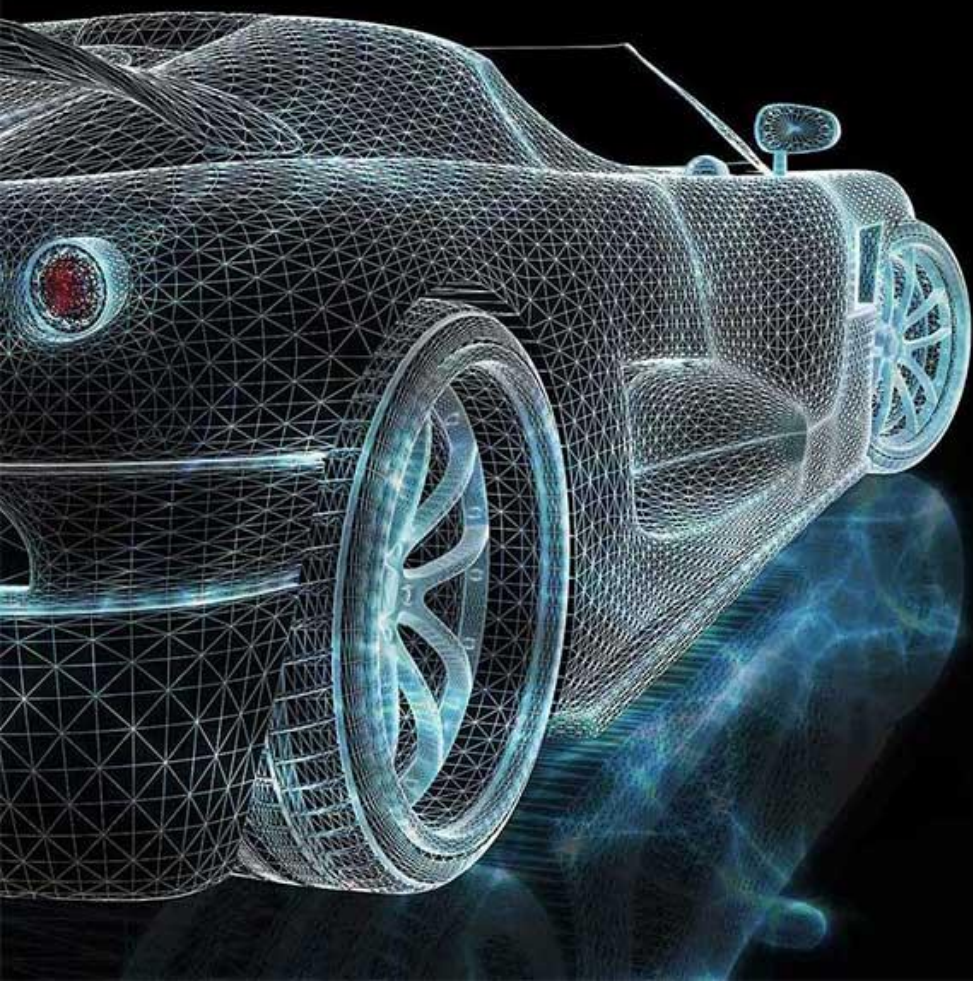
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Agenda



01 財務表現

02 有助於巧新營運發展的產業趨勢

03 全球第一豪華車及跑車鍛造鋁合金
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財務表現

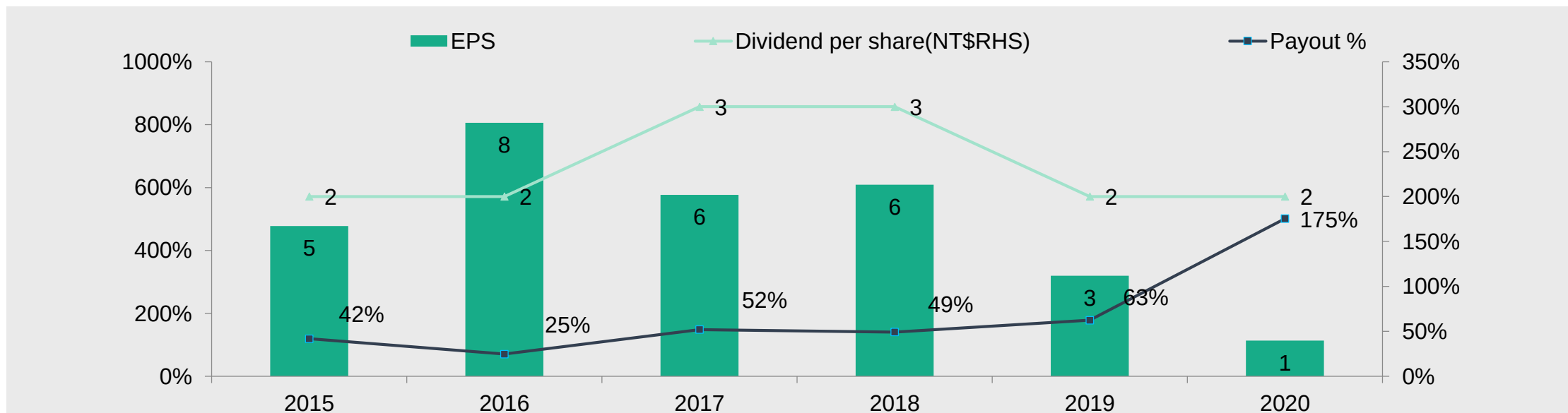
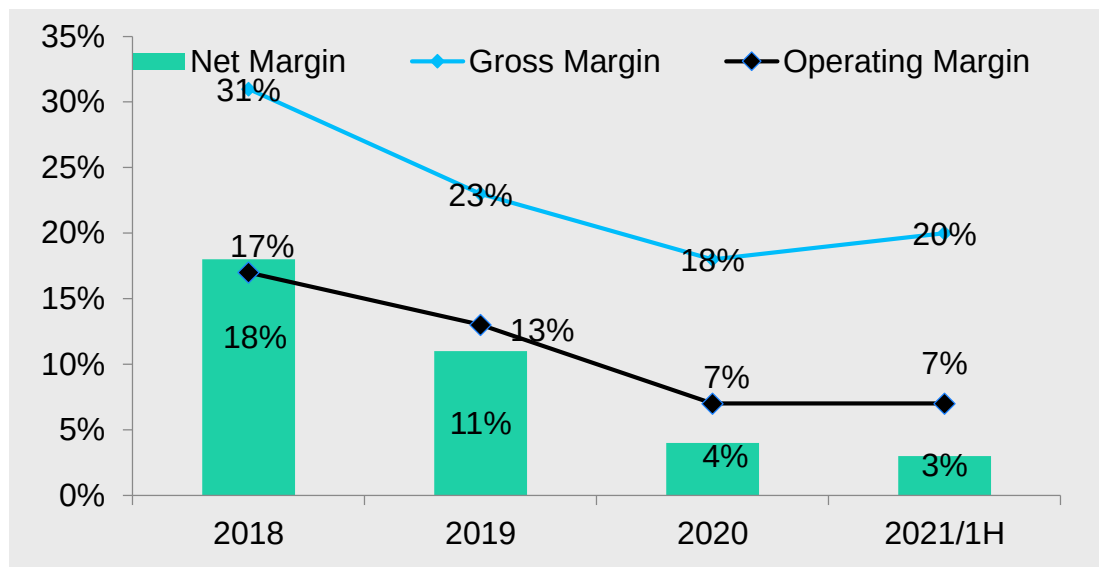
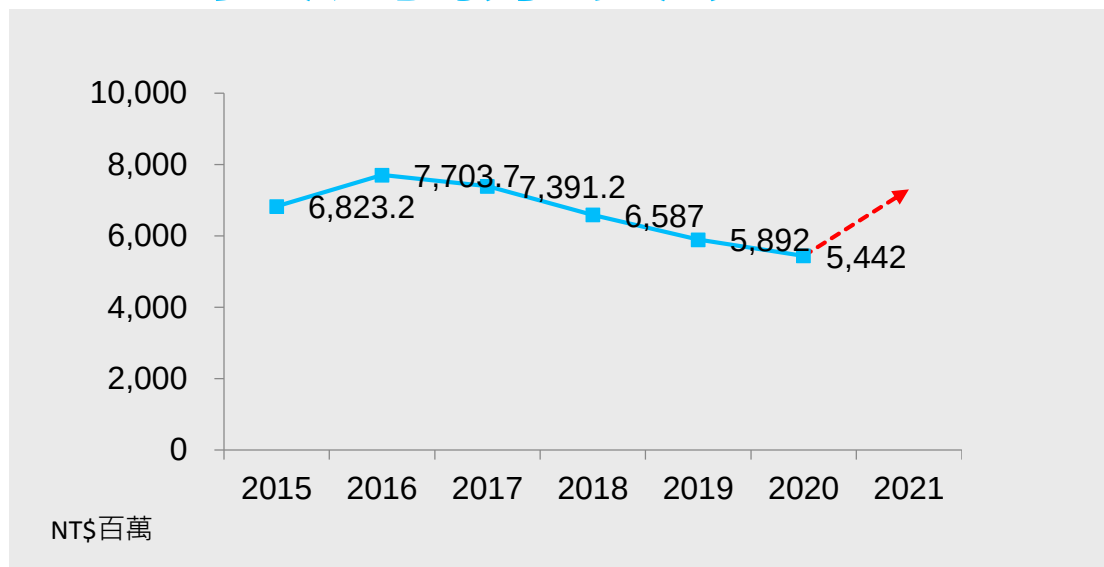
2021 v 2020 上半年獲利表現

◆ 同期營收成長61%，獲利由虧轉盈

NT\$ million	2021/1H	2020/1H	YOY	2020/2H
Sales Revenue	3,788	2,355	61%	3,087
Gross Profit	749	48	1448%	943
Operating Profit	267	(272)	負轉正	653
Income before tax	134	(232)	負轉正	492
Net Income	114	(190)	負轉正	412
EPS (NT\$)	0.58	(0.97)	負轉正	2.11



重要財務表現



2019-2021/1H Balance Sheet

NT\$ million	2019	2020	2021/1H
TOTAL ASSETS	16,982	16,820	16,456
Cash	1,143	1,247	1,245
NR & AR	697	795	876
Inventory	4,986	5,072	4,960
PP&E	9,631	9,274	8,893
Others	525	432	482
TOTAL LIABILITIES	9,576	9,580	9,500
Bank Loans	8,232	8,238	7,612
AP	74	120	101
Others	1,270	1,222	1,787
TOTAL EQUITY	7,406	7,240	6,955
A/R turnover days	52	51	56
Inventory turnover days	99	108	140
A/P turnover days	79	78	77
Cash conversion cycle	72	80	119



有助於巧新營運發展的 產業趨勢

產業趨勢對巧新發展更有利

1. 國際能源署(IEA)發佈「2021年世界能源展望」報告

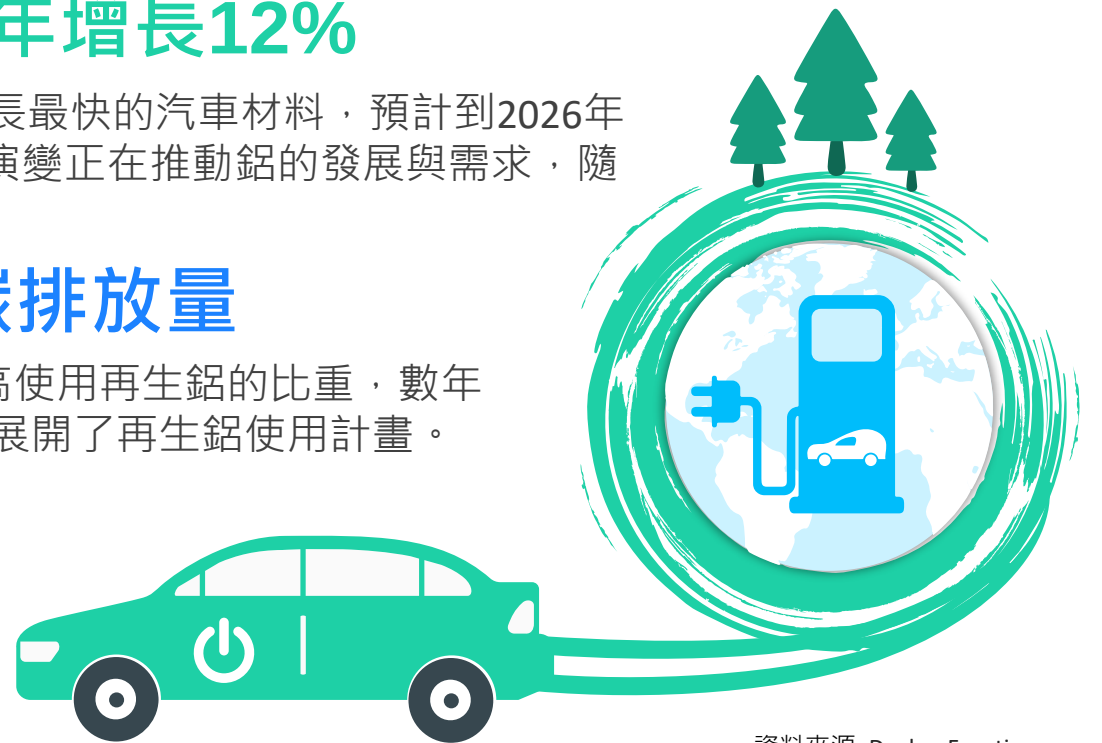
全球各國紛紛發表碳中和承諾。芬蘭設在2035年，奧地利及冰島設在2040年，歐盟、加拿大、南非、日本、英國、法國、丹麥等國承諾2050年，中國宣布2060年前實現。

2. 到2026年汽車鋁含量將比2020年增長12%

根據鋁業協會(Aluminum Association)調查，證實鋁是增長最快的汽車材料，預計到2026年每輛車的含量將增加到514磅。汽車結構輕量化的設計演變正在推動鋁的發展與需求，隨著市場滲透率不斷提高。

3. 車廠將導入更多再生鋁件減少碳排放量

BMW要求供應商2025年使用超過50%的再生鋁；JLR提高使用再生鋁的比重，數年內可減少生產流程碳排放量26%。Audi、Toyota、VW都展開了再生鋁使用計畫。與原生鋁相比，再生鋁製造最多可以減少95%的耗能。



資料來源: Ducker Frontier

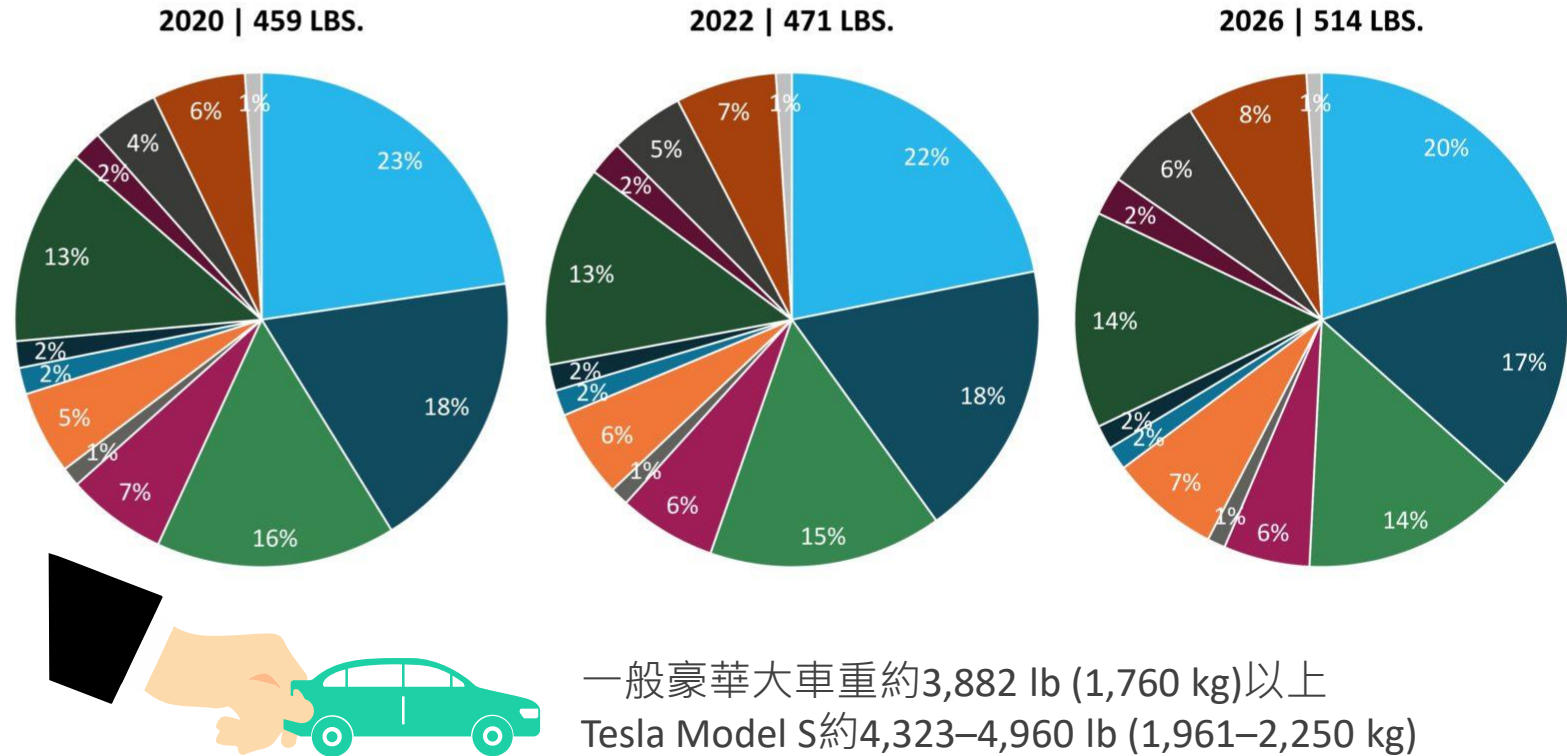
產業新聞

經濟部2021/2022產業技術白皮書

汽車將採用更多鋁製零組件以達輕量化

System PPV	2016	2020	2022	2026
Engines	110	104	103	102
Transmissions & Drivelines	83	85	86	86
Wheels	65	72	72	73
Heat Exchangers	32	30	30	29
Heat Shields	6	6	6	6
Suspensions/Cradles/Subframes	21	25	27	37
Steering Components	8	8	8	8
Brakes	8	8	8	8
Closures	41	59	62	73
CMS	7	9	11	13
Body Stamping	11	20	23	33
Other Body	14	28	31	41
All others	5	5	5	5
Total	411	459	471	514

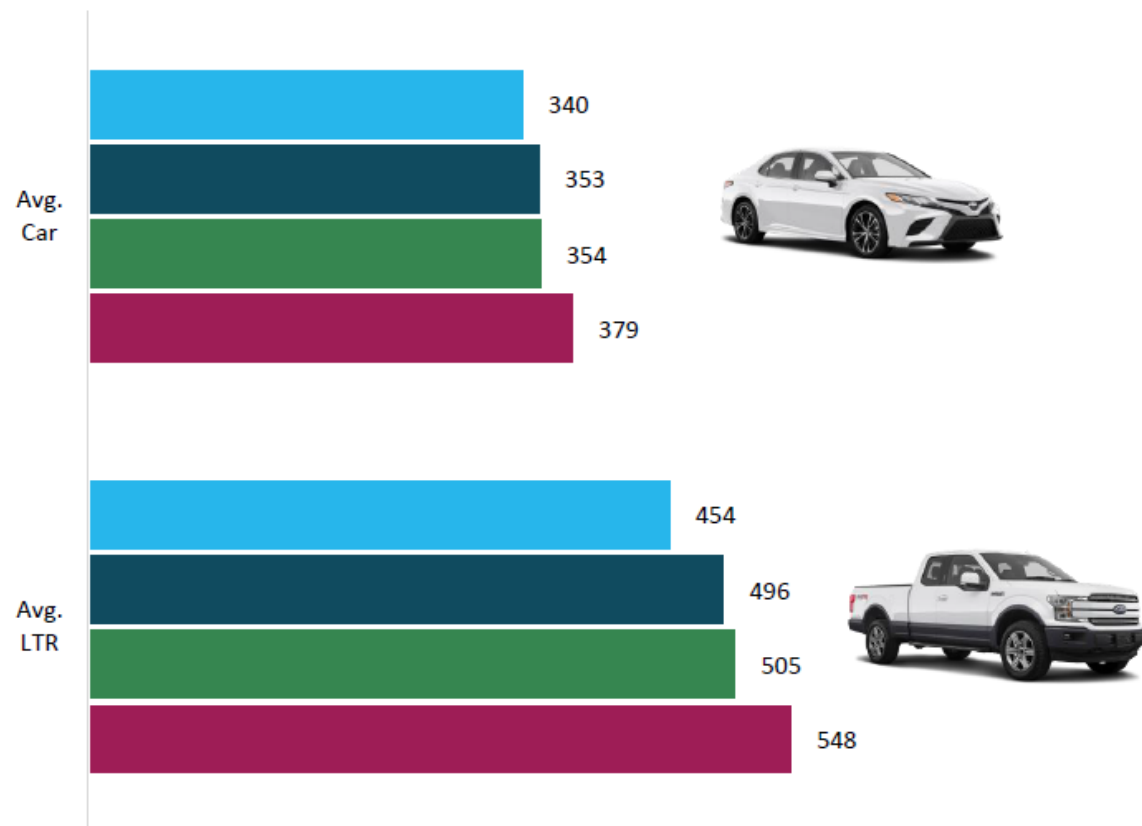
隨著封閉件和車身結構在鋁滲透率方面的繼續增長，懸架部件的份額預計也將增加。專用於純電動車的部件（例如電池盒、電機外殼、轉換器外殼、BMS 外殼等）也將擴大對鋁的使用以抵消重量增加。



中大型房車、休旅車、跑車較一般級別車型使用更多鋁製零組件以達到輕量化，並兼具安全性與操控性

Vehicle Segments PPV

■ 2016 ■ 2020 ■ 2022 ■ 2026



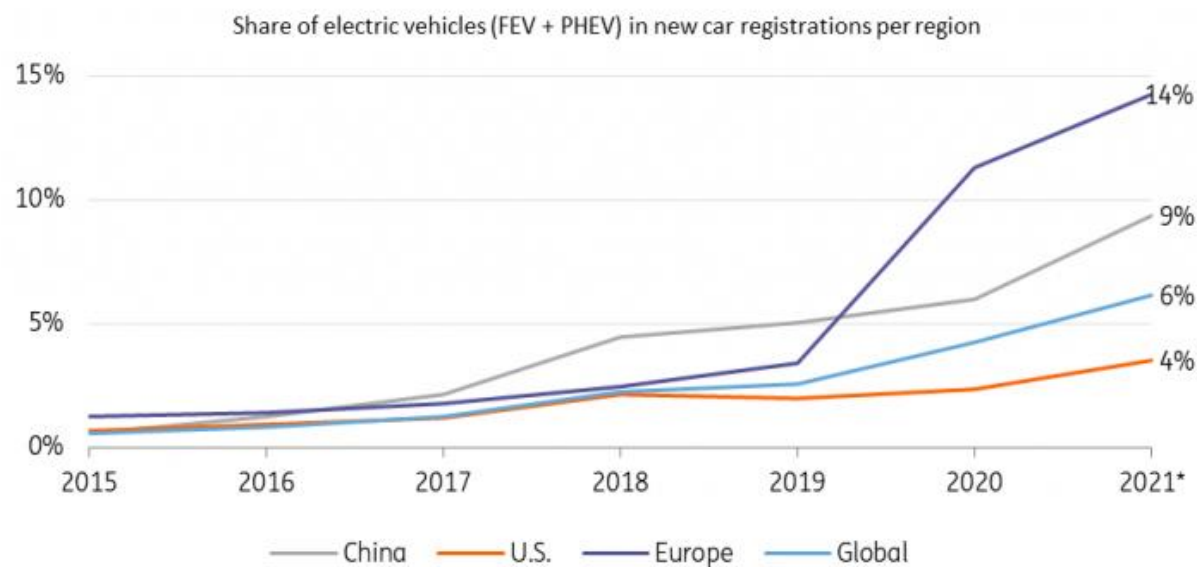
Segment	2016 PPV	2020 PPV	2022 PPV	2026 PPV
A Segment Car	297	304	N/A	N/A
B Segment Car	248	258	259	294
C Segment Car	285	270	278	288
D Segment Car	366	423	427	471
E Segment Car	537	519	626	834
Average Car	340	353	354	379
Segment	2016 PPV	2020 PPV	2022 PPV	2026 PPV
B Segment LTR	251	241	258	260
C Segment LTR	314	357	364	412
D Segment LTR	402	410	435	477
E Segment LTR	574	654	671	721
Average LTR	454	496	505	548
Segment	2016 PPV	2020 PPV	2022 PPV	2026 PPV
Total Average	411	459	471	514

資料來源: [Ducker Frontier](#)

全球電動車新車銷售量表現

歐洲引領電動汽車轉型，其次是中國和美國

2021年初全球在路上的電動車只有1%(1000萬輛)，疫情加速了電動車開發和銷售。BNEF預估2021全年，全球電動車(含PHEV)銷售份額將從4%成長到6%，增長 50%，並在2022年進一步上升到8%。歐洲目前領先世界，預計 2021年電動汽車將佔新銷量的14%，其次是中國(9%)。



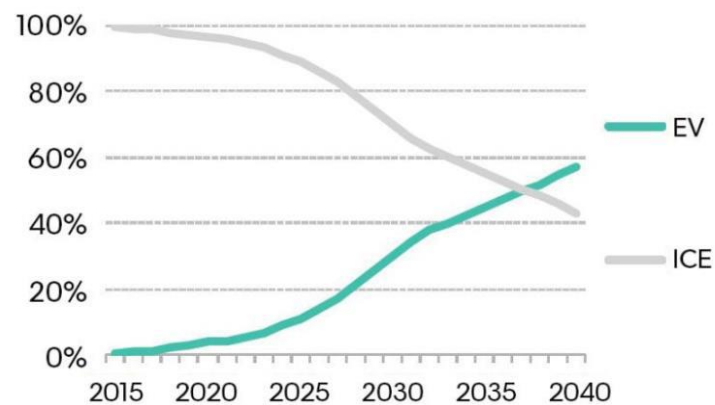
資料來源: ING

Bloomberg預測電動汽車年銷量

2025年1,000萬輛，
2030年2,800萬輛，
2040年5,600萬輛。

Global EV and ICE share of long-term passenger vehicle sales

Share of annual sales



Source: BloombergNEF

電動車輕量化 不可或缺的零組件

SF90 STRADALE



2019 Taycan

Front: 21x9.5 (13.609kg)

Rear: 21x11.5 (14.667kg)



All-electric Car

More than 20,000 Taycans were delivered in 2020, its debut sale year, representing 7.4% of the total Porsche volume.



2020 Bentayga



20x10 (17.241kg)



Plug-in Hybrid Luxury SUV

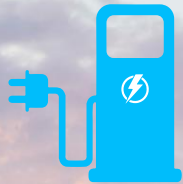
The Hybrid models of Bentayga S and Bentayga Speed each feature their own imposing 22" wheel designs.

2021 Artura



Front: 19x8.5 (9.139kg)

Rear: 20x10.5 (11.024kg)



Plug-in Hybrid Sports Car

The new McLaren Artura hybrid supercar is set for launch by the end of 2021, with McLaren referring to its new petrol-electric two-seater as its first 'High-Performance Hybrid' model.

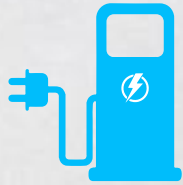




2022 296GTB

Front: 20x9 (12.469kg)

Rear: 20x11 (13.862kg)



Plug-in Hybrid Sports Car

296 GTB was presented as the first "real Ferrari with six cylinders". The sports car is scheduled to go on sale in 2022.



至今交付**22**款電動車 (5 BEV : 17 PHEV)

Porsche Taycan 2x造型 (2019-至今)



Jaguar I-Pace (2018-至今)



BMW i8



Tesla Model X (2015-2018)



Tesla Roadster (2008-2012)



McLaren Artura



Ferrari Stradale



Porsche Panamera 4 E-hybrid



Volvo Polestar S60/V60



Range Rover SVA



Bentley Bentayga Hybrid



Lexus LC500 HEV



Porsche Cayenne E-hybrid



Acura NSX HEV



原材料短缺、漲價，品牌車廠積極釋出碳中和的目標 巧新再生鋁去化加速，鍛造鋁圈需求增加

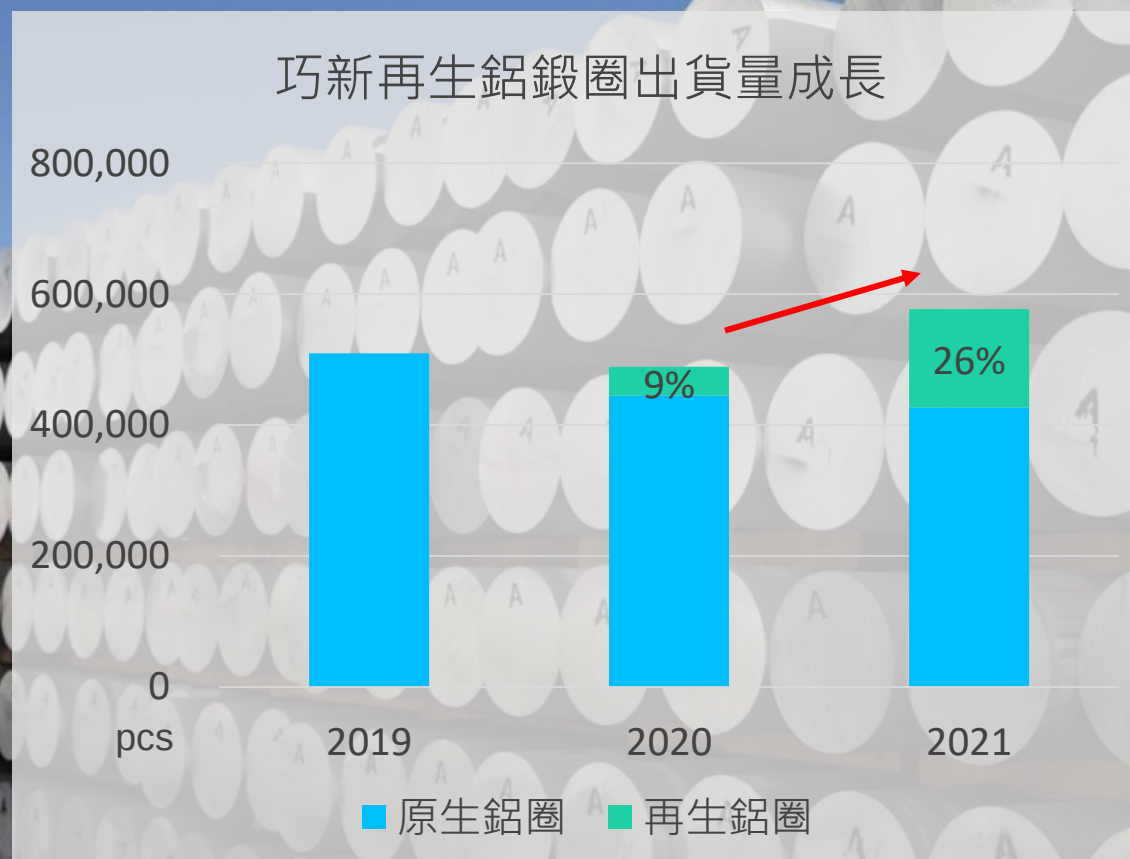
碳中和目標年	承諾車廠
2030	Porsche, Bentley
2035	Toyota
2039	Daimler, JLR
2040	GM, Volvo
2045	Hyundai
2050	VW, Audi, Ford, RR, Nissan

2021年1-10月鋁價漲勢



資料來源: [Trading Economics](#)

★客戶採用巧新再生鋁輪圈
2020年佔9%，2021年成長至26%



The background of the slide features a dark, moody photograph of a Rolls-Royce vehicle. On the left, a large, multi-spoke alloy wheel is visible, with the Rolls-Royce logo in the center. To the right, a vertical door handle with the Rolls-Royce logo is shown. The image is partially obscured by a dark blue diagonal overlay on the left side, which serves as the background for the text.

全球第一豪華車及跑車

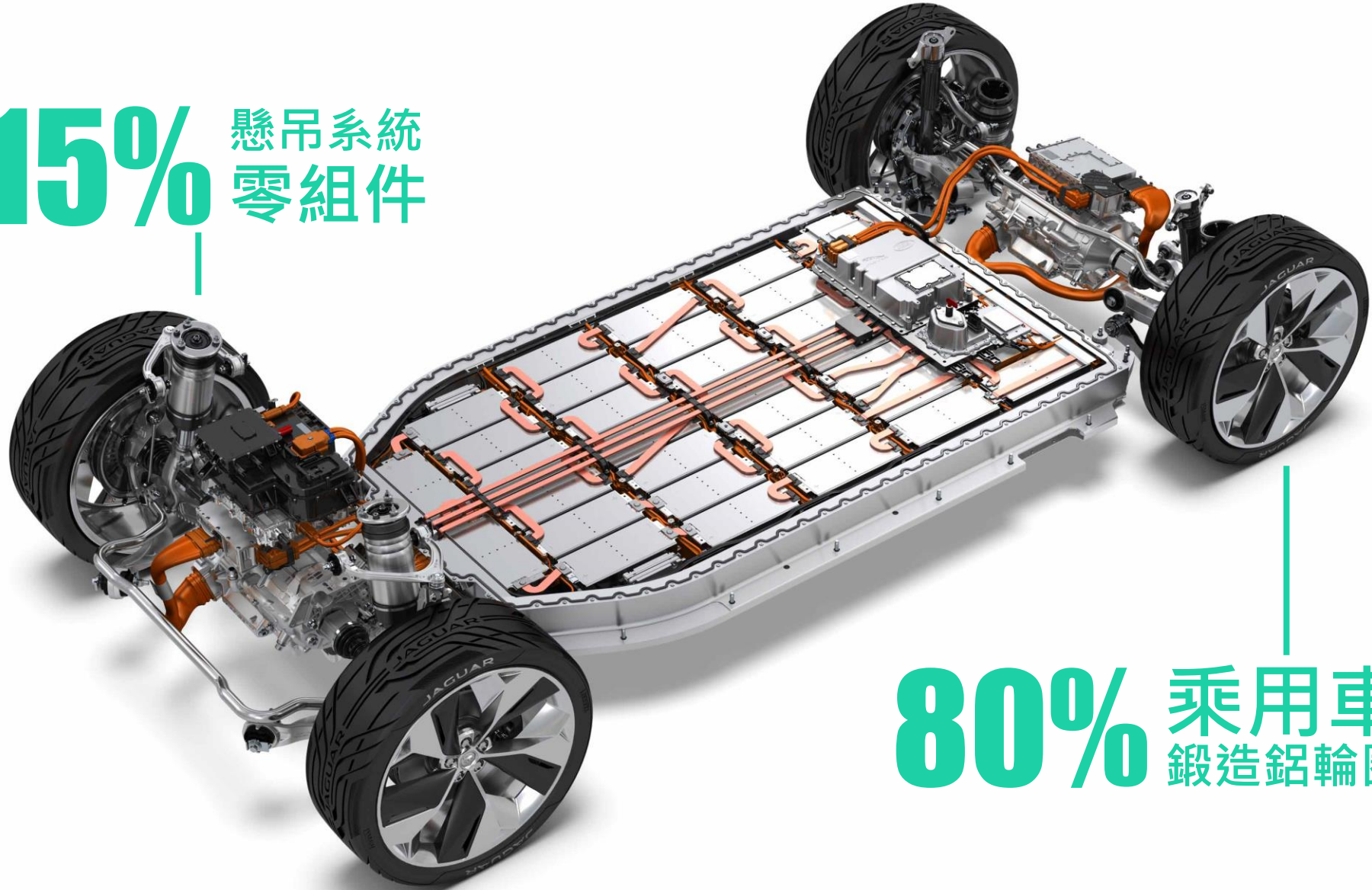
鋁合金鍛造輪圈供應商



20年來，我們專長於鍛造輕量化合金之汽車零組件產品
鍛造鋁圈長久以來驅動我們的核心營收與獲利成長

聚焦底盤系統最堅固的關鍵零組件

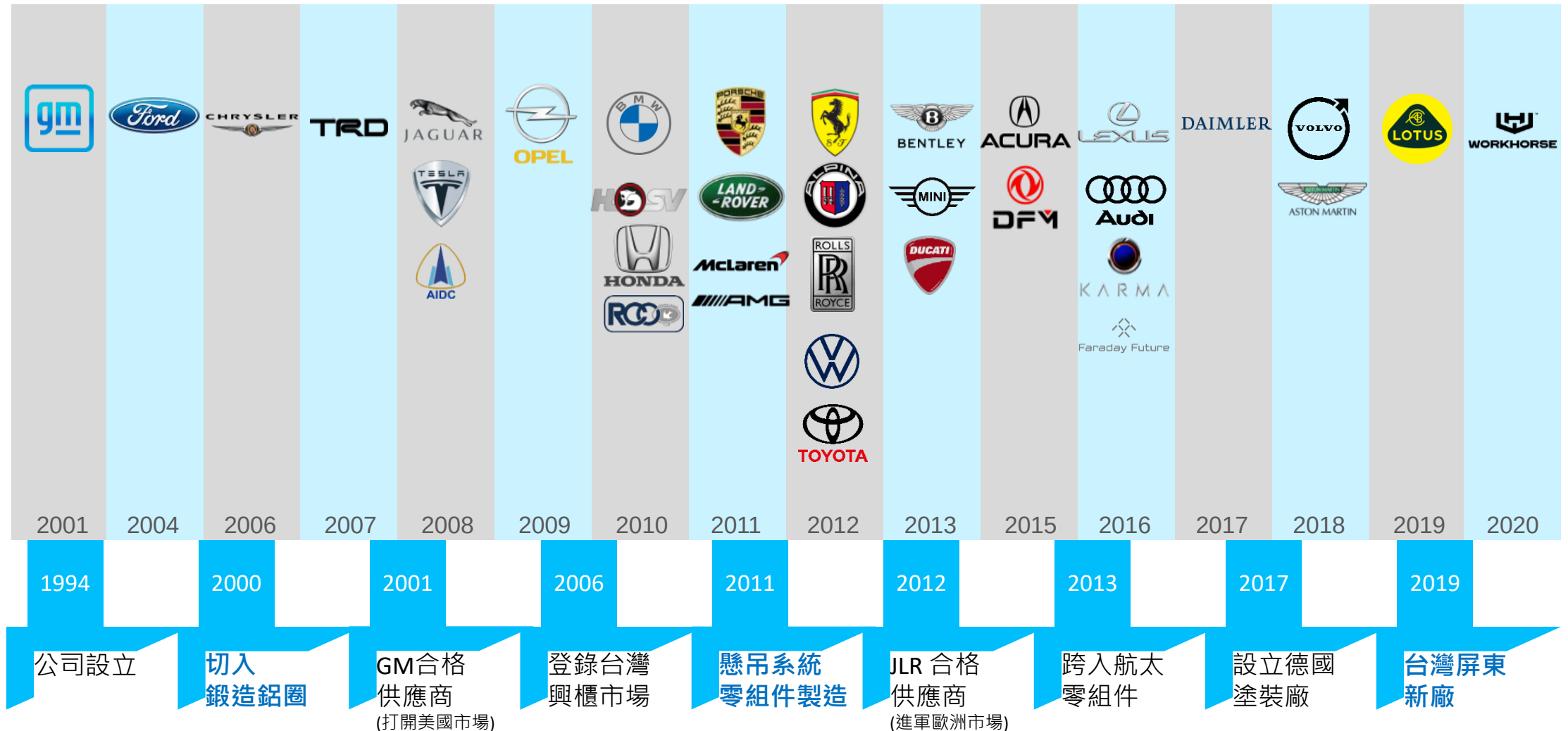
15% 懸吊系統
零組件



80% 乘用車
鍛造鋁輪圈

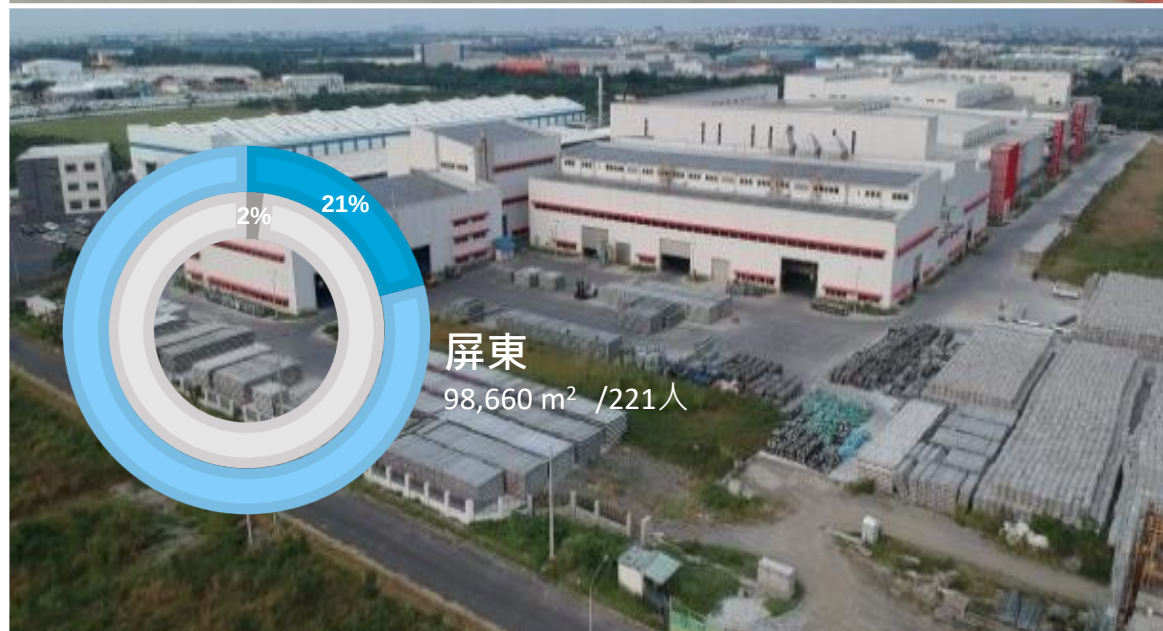
巧新為全球知名汽車品牌之一級供應商

- ◆ 超過20年的設計與製造經驗
- ◆ 前五大客戶包含JLR、BMW、Mercedes Benz、Toyota及Porsche



MIT優勢，讓世界看到巧新

*人數統計至2021年11月底，
2021 vs 2020 產能利用率



	斗六	屏東	德國
鍛造	✓	✓	
機械加工	✓	✓	
拋光	✓	✓	
塗裝	✓	✓	✓
測試	✓		
熔煉		✓	
產能(pcs)	700,000	300,000	400,000



世界級的製造效率

巧新最佳的鍛造輪圈製造服務包括：

- ◆ 設計、客製化與量產前服務支援
- ◆ 噴塗製程前產品良率達97%以上
- ◆ 嚴謹的材料、功能性與環境測試，以確保輪圈安全性與最高品質



鍛造

8,000 Ton Forging
7,000 Ton Forging
Flow Forming
T6 Heat-Treatment



機械加工

Turning
Milling
Diamond-Cutting
Dot Marking
Laser Etching



拋光

Manual Grinding
Robotic Grinding
Dynamic (Vibration)-
Polishing
Physical (Mechanical)-
Polishing



塗裝

Manual Painting
Automated Painting
Masking
Powder Painting
Liquid Painting
Up to 6 Coats- 6 Bakes

嚴謹測試以確保產品安全與品質

- ◆ 詳盡的品管系統與專業的安全測試實驗室
- ◆ 開發品質保障科技、檢測流程與累積相關實驗大數據
- ◆ 持續精進製造流程以達更高標準與更佳之客戶服務
- ◆ 巧新輪圈遵循國際業界標準，包含 **VIA JWL INMETRO**



Bending Fatigue
Radial Fatigue
13 Degree Impact
30 Degree Impact
Bi-axial Test

Metrology Measurement CMM
Fatigue Material Test Tensile
Brinell hardness ARL spark O.E.S.
Vicker hardness Rockwell hardness
Metallography microscope



材料
試驗

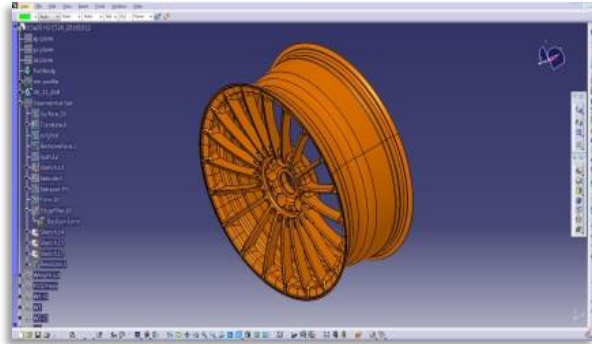
功能
測試



CASS Gasoline Resistance
Salt Spray Chip Resistance
Thermal Shock Solvent Rub
Water Resistance Cycle Crack
Filiform Corrosion Color
Xenon (Weathering Resistance Test)

環境
測試

巧新強大的設計端有限元素分析能力

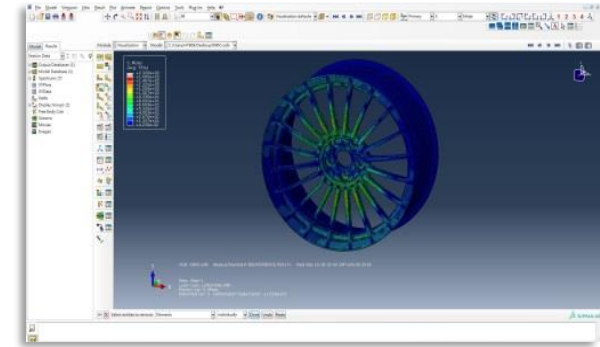


ABAQUS
HyperWorks
LS DYNA
Fe-safe
DEFORM
FORGE
Simufact Forming

Siemens NX (CAD/ CAM)
CATIA V5-6 (CAD)
Creo (CAD)
Autodesk Inventor (CAD)
MasterCAM (CAM)
Autodesk Powermill (CAM)

電腦輔助
設計/製造

電腦輔助
工程



模擬
分析

Radial & Rotary Analysis
Impact Analysis
Stiffness Analysis
Natural Frequency
Mold Flow

堅實的研發能力

01

Microstructure-Processes-Properties
Evaluation

02

Optimization on Forging Processes

03

Near Net Shape Forging

04

Composite Materials

05

Lightweight Magnesium Alloys

06

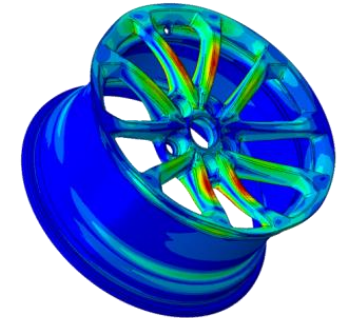
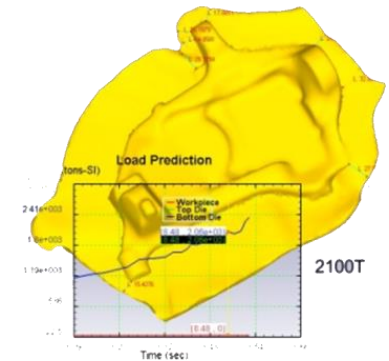
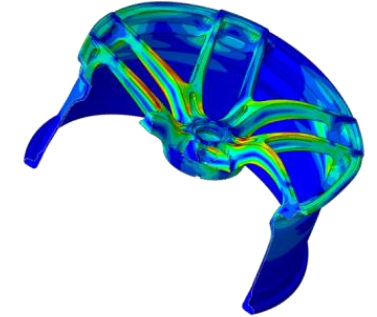
CAE/CAD Design on
Chassis Products

07

Modularization of Automotive
Structural Parts

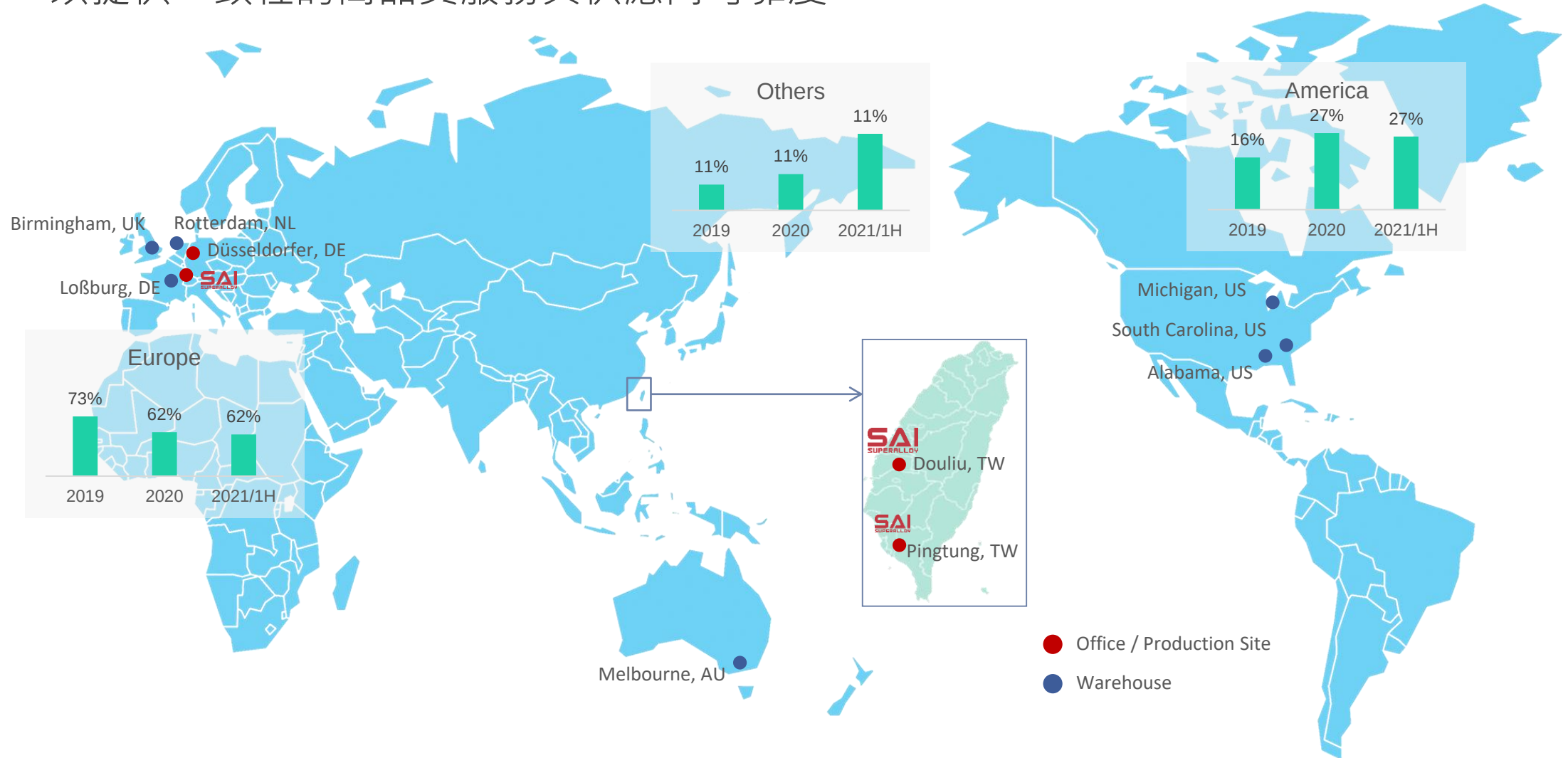
08

Automation Equipment Development



全球布局掌握最新潮流

為服務全球品牌客戶，巧新設立全球銷售、塗裝與物流設施，
以提供一致性的高品質服務與供應商可靠度。



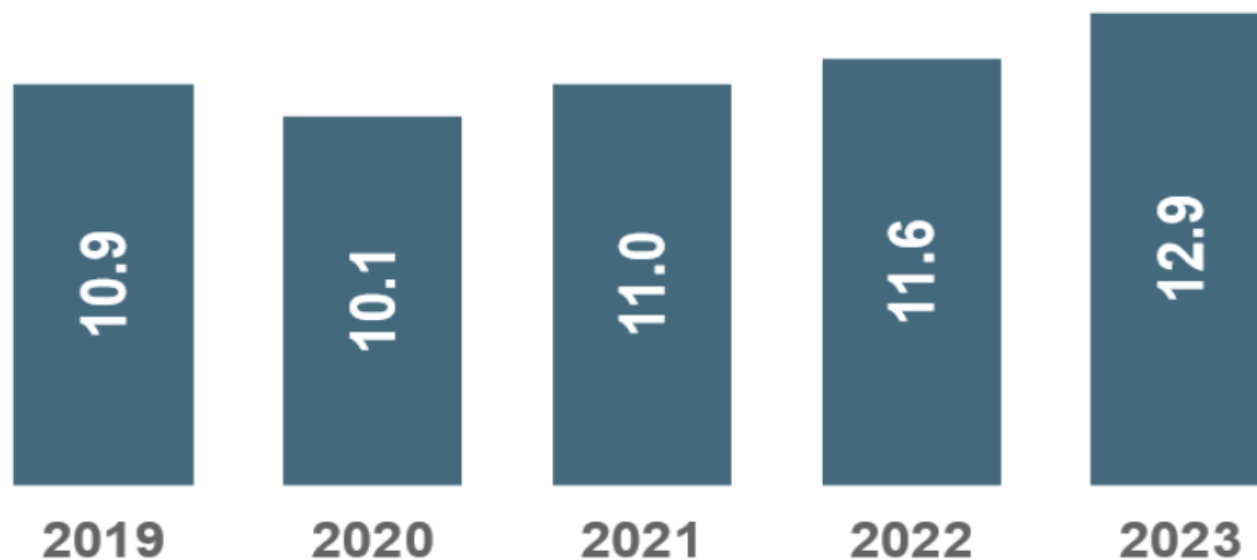


巧新的成長願景

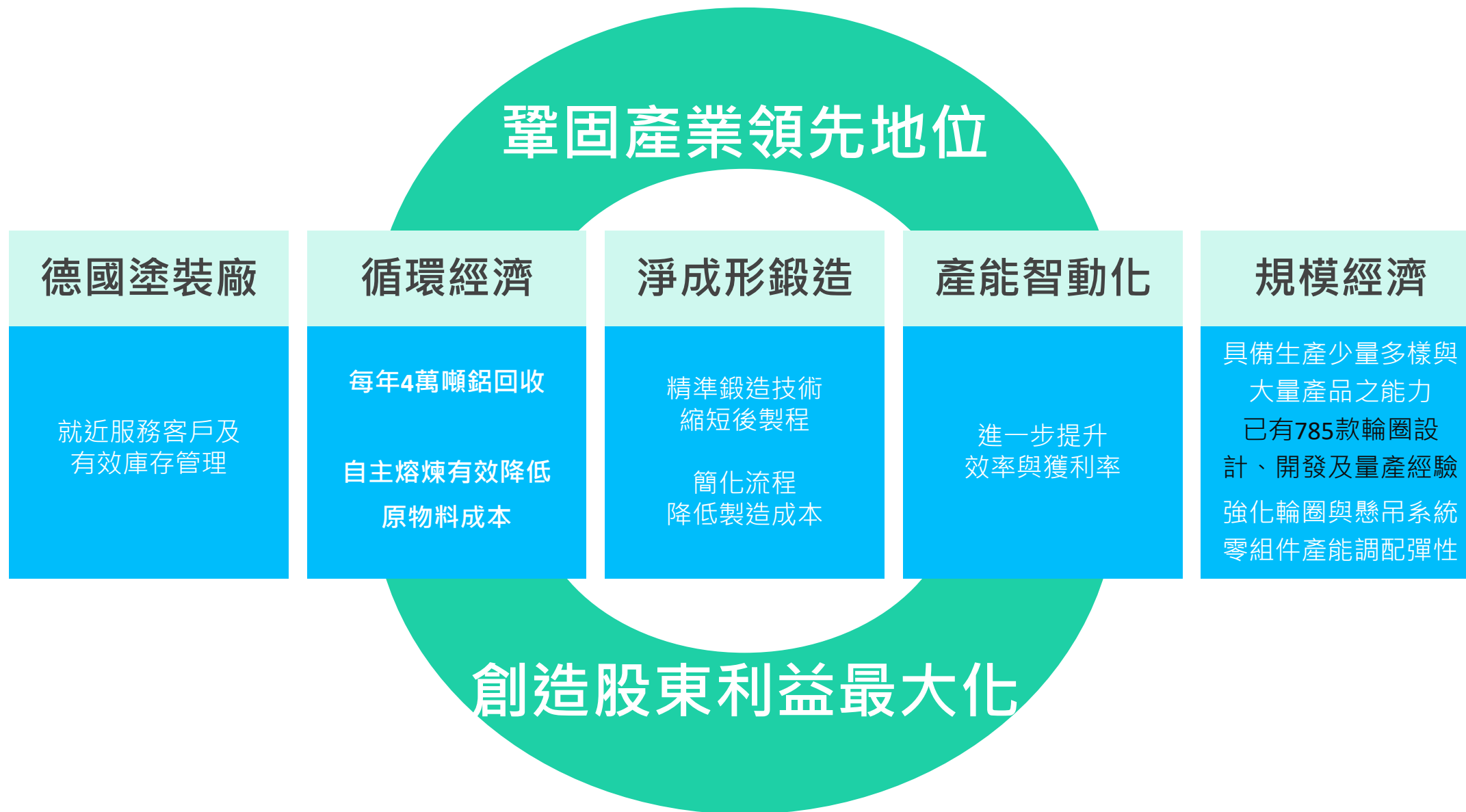
豪華車市場成長速度優於整體車市

- ◆ 全球車市缺芯，車企犧牲低利潤車型，確保高利潤車型持續產出
- ◆ 高端消費者疫情期間收入影響較小，財富來源(如股市和房地產)也呈積極走勢
- ◆ 2019-2021年豪車市場份額增長2%，全球銷量占比達到16%
- ◆ 2021年豪車銷量將達到2019年疫前的歷史最高位；全球輕型車總銷量仍比2019年減少11%

Chart: Global Premium/Super-Premium Sales Forecast (millions, units)



巧新強化競爭力，創造股東利益最大化



屏東新廠產能規劃



	目前產能	二期產能	三期產能
鍛造	300,000	600,000	900,000
機械加工	300,000	600,000	900,000
拋光	300,000	600,000	900,000
塗裝	600,000	600,000	600,000

*以淨成形輪圈計算

巧新科技集團 v2.0 策略



移動產業鍛造商品解決方案提供者

人才



產學合作，
網羅技術人才

研究機構合作，
強化研發設計力

高品質安全 輕量化產品



結合複合材料、
工藝技術
(空氣動力學)
開發多元產品

完整實驗室驗證
能力，開發更多
汽車底盤、懸吊
系統相關產品

先進製程 材料技術



淨成型製程技術

高速電腦模擬，
縮短開發時程

智能工廠



導入自動化設備，
提升產能效率

MES生產履歷、
大數據分析(包含
生產、庫存管理
等)

全球化佈局



全球銷售據點，
即時在地化供
應、售後服務

開拓更多電動車/
新能源車車款，
切入大型客車、
商用車等
利基型市場

企業 社會責任



基金會社會關懷
(EX:被害人保護
協會等)

綠電採購、回收
熔煉再生鋁

股東利益最大化

感謝各位
投資先進的與會

