

# Engines Investor Event Trollhättan

18 October 2023

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The revenue and profit numbers included in this presentation are calculated using a foreign exchange rate of USD:GBP of 1.25:1 and, unless otherwise stated, growth metrics are at constant currency. Unless otherwise stated, metrics refer to adjusted measures as described in the glossary to the Melrose Industries PLC 2023 Interim Financial Statements and considered by the Board to be a key measure of performance.

## Key messages

1

GKN Engines has OEM-level capability and responsibility for selected engines which gives more technical and commercial advantages than normal for a Tier 1 supplier

2

Leading independent Tier 1 partner to all major engine OEMs with lucrative and diverse RRSP<sup>1</sup> portfolio, providing balance and resulting opportunities

3

Strong long-term demand for GKN proprietary breakthrough technologies which will shape new ways for the industry to improve

**Trading ahead of plan with the 2023 full year Engines margin guidance raised to 24%  
Significantly underpinning the 28% margin in 2025 and >30% beyond**

1. Risk and revenue sharing partnerships



## Who we are

**£1.3bn**  
SALES

**4,000+**  
EMPLOYEES

POWERING  
**90%**  
OF ALL FLIGHTS<sup>1</sup>

**90+**  
YEARS OF  
FULL ENGINE  
CAPABILITY

INDEPENDENT  
**PARTNER**  
TO ALL MAJOR  
ENGINE OEMS

**2**  
ENGINEERING &  
TECHNOLOGY  
CENTRES

1. GKN content on ~90% of civil aircraft engines



## GKN Aerospace Engines Leadership Team

300+ years of combined experience in aerospace

From all OEMs, markets and regions



# Market and customers



# Our markets

Sales  
**~70%**

## Civil



\$50 billion market

Regional, narrowbody and widebody

Sales  
**~25%**

## Defence



\$10 billion market

Fighter engines

Sales  
**~5%**

## Adjacent



\$4 billion market

Launcher engines and aero-derivatives

Strong core markets in civil and defence aerospace

# Our customers

Sales  
~70%

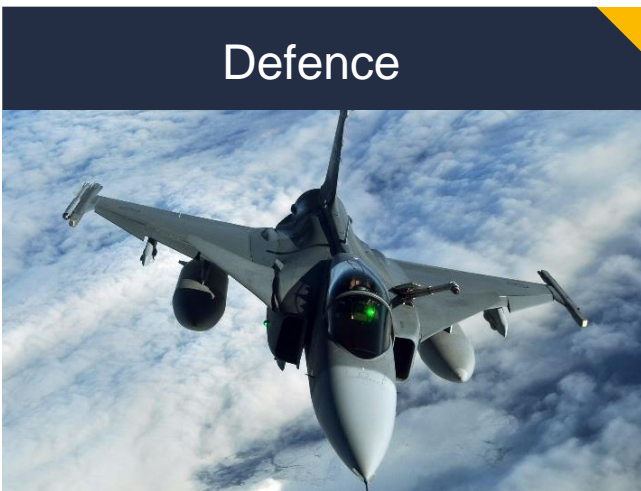
## Civil



500+ repair customers

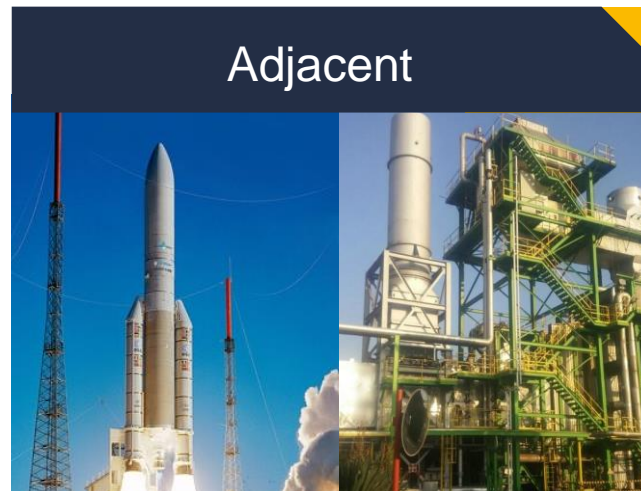
Sales  
~25%

## Defence



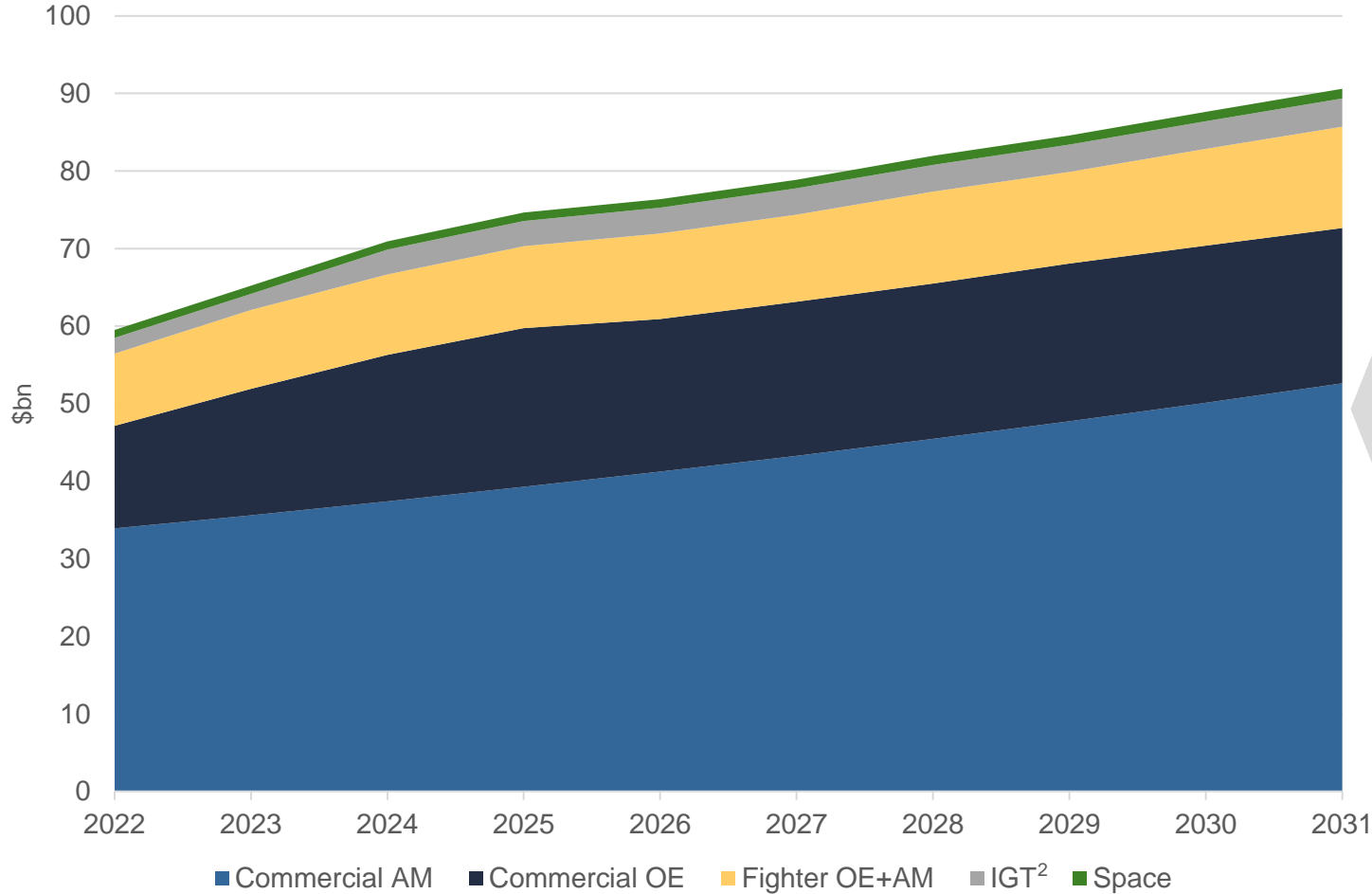
Sales  
~5%

## Adjacent





# Engines market structural growth<sup>1</sup>



## Key drivers

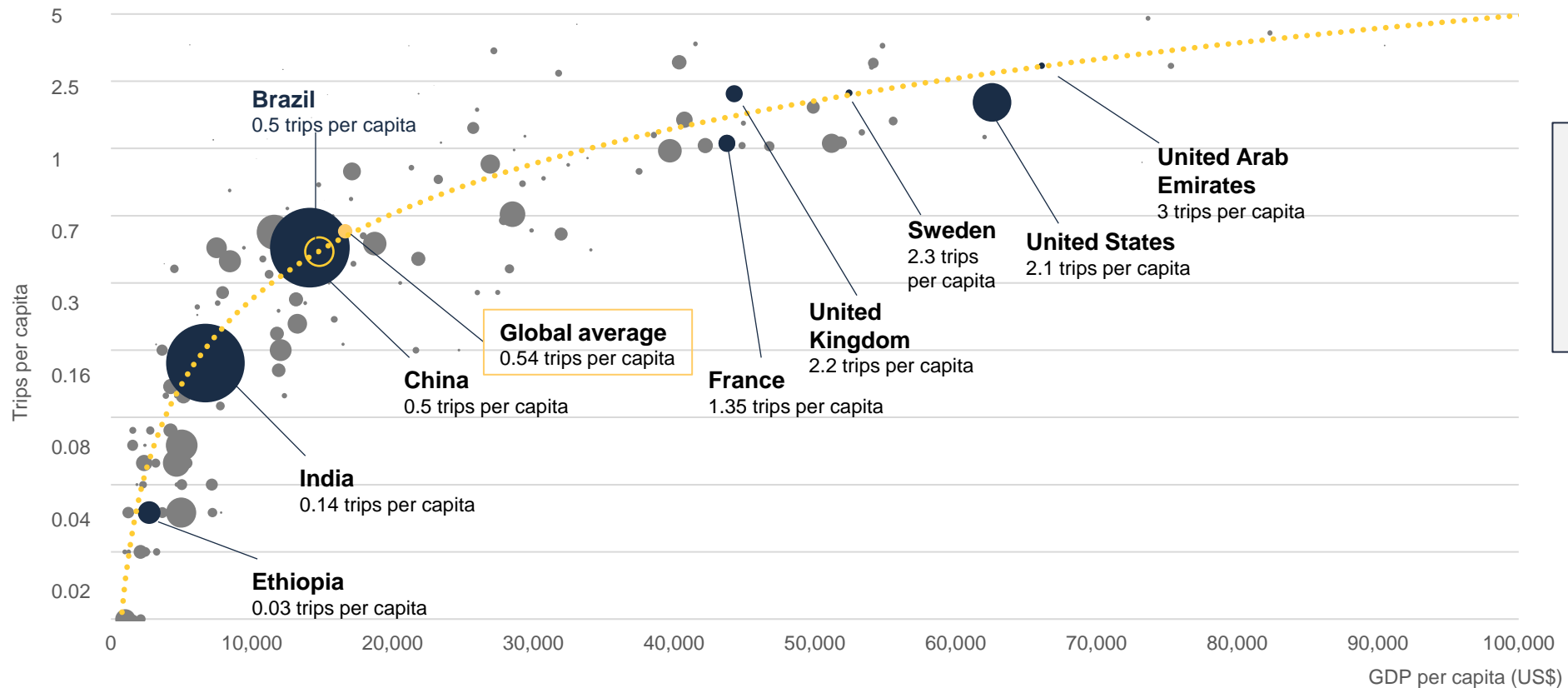
- 1 Increasing flying hours, especially in Asia
- 2 Current fleet needs to fly for many years to come with increasing aftermarket support required
- 3 Over next two decades global fleet set to double

1. External projection for markets in which GKN Aerospace operate. GKN Engines defined market; civil aircraft >100 passengers, western fighter engines, space launcher engines and aerospace derivative IGT<sup>2</sup>

2. IGT = Industrial gas turbine

# 1 Increasing flights, especially in Asia

GDP per capita vs flights per capita

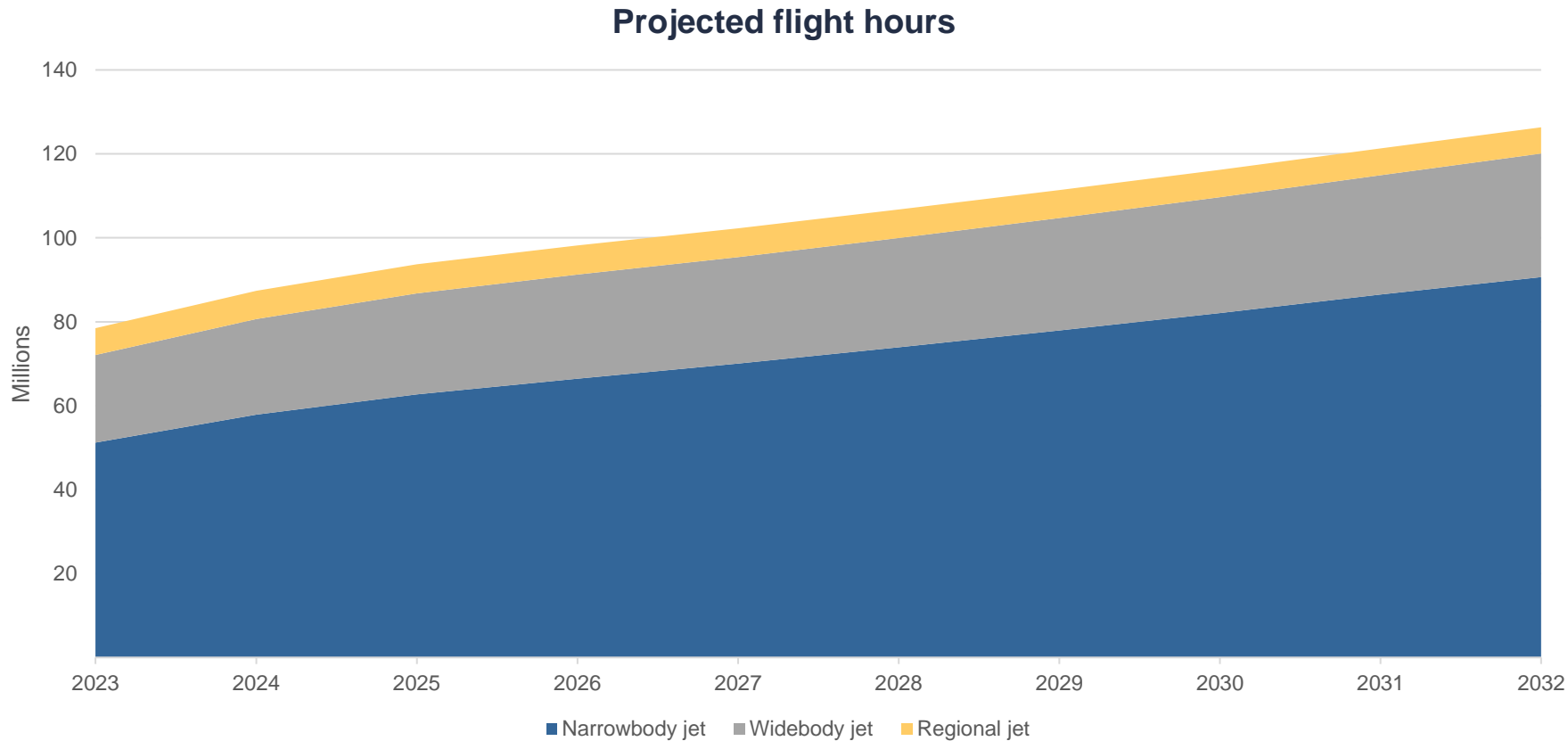


Source: IHS Markit, Sabre GDD, Airbus GMF

- > Economic growth leads to increased flights
- > Rapid growth in emerging markets

Growing middle class drives increase in global flights per capita

# 1 Flight hours growing strongly



> >75% growth in narrowbody flying hours over next decade, widebody >40%

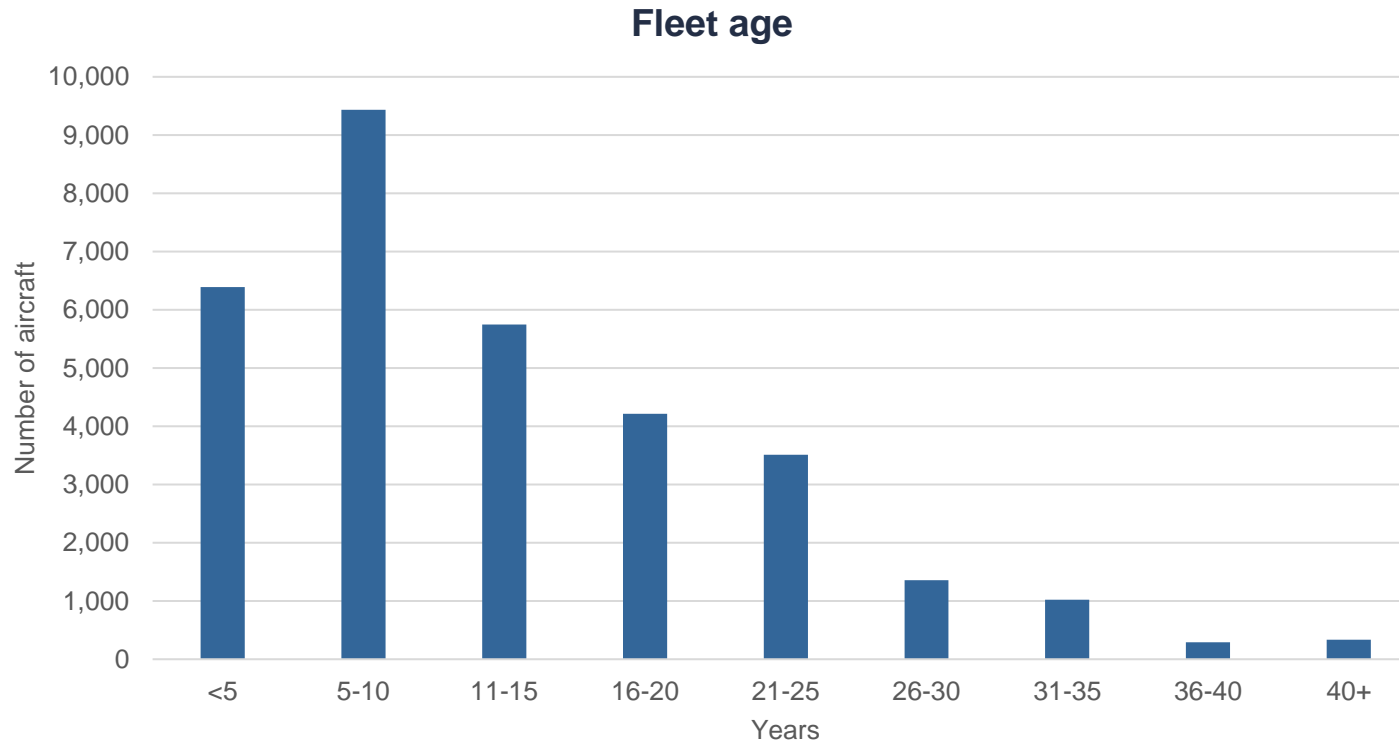
2023 – 2032  
CAGR 5%

2023 – 2032  
narrowbody  
CAGR 7%

~60% increase in flight hours in the coming decade



## 2 Current fleet to fly for many years to come



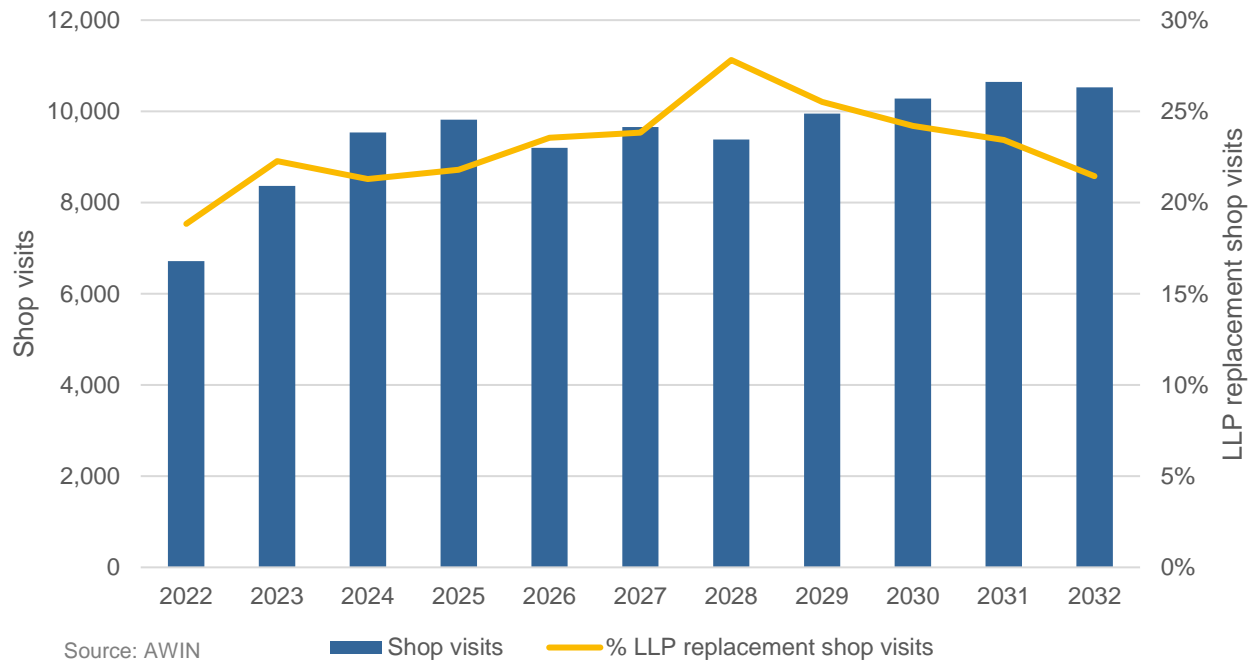
Source: AWIN

- > Aircraft in service are relatively young and have many years flying to come
- > Aircraft flying for longer due to constrained OEM deliveries
- > Resulting in more aftermarket

Many years of flying and shop visits to come for current fleet

## 2 Growing fleet aftermarket support

Shop visits & share LLPs<sup>1</sup>

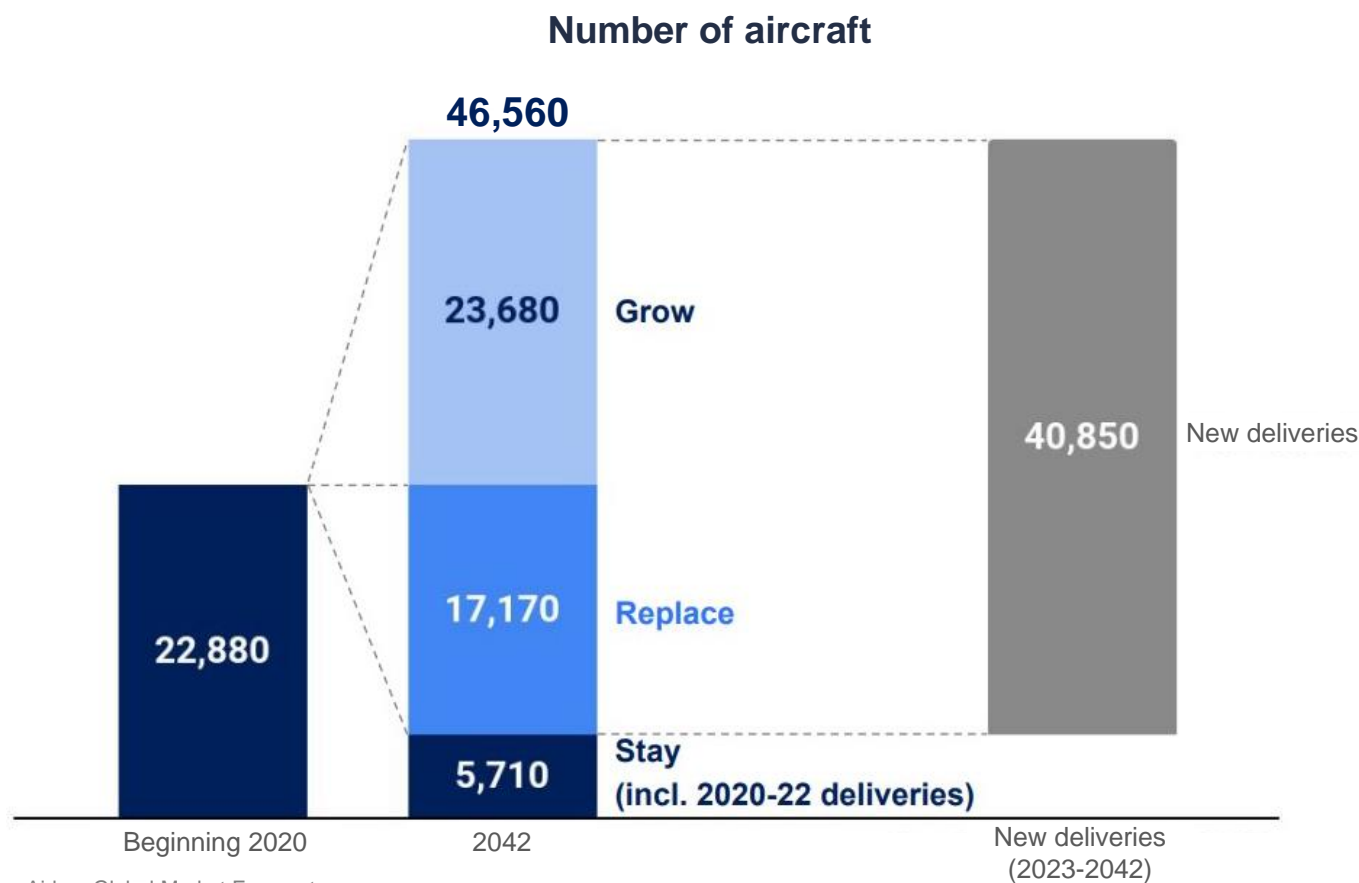


- > Significant number of aircraft sold from 2009 to 2019 requiring maintenance now and in future
- > Growing aftermarket driven by:
  - increased shop visits and higher percentage of LLP<sup>1</sup> replacements (which necessitate a heavy shop visit)
  - OEM service agreements and spare part price increases

Increasing support required – greater number and complexity of shop visits

1. LLP = Life-limited part

### 3 Strong demand for continually growing fleet



- > >40,000 new deliveries expected over next 20 years, mostly with current engine programmes
  - GTF, LEAP, XWB, GEnx
- > Significant portion of current fleet need to fly for many years to come
  - V2500, CFM56, CF6, T700

Global fleet set to double in next two decades



# Multiple business models provide a balanced portfolio

Sales  
**55%**

## Civil RRSP partnerships



Provides entitlement to  
aftermarket revenue and profit

**Original equipment +  
Aftermarket**

Sales  
**10%**

## Government partnerships

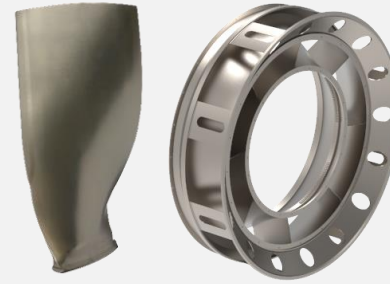


Unique, system-level capability

**Original equipment +  
Aftermarket**

Sales  
**10%**

## Repairs

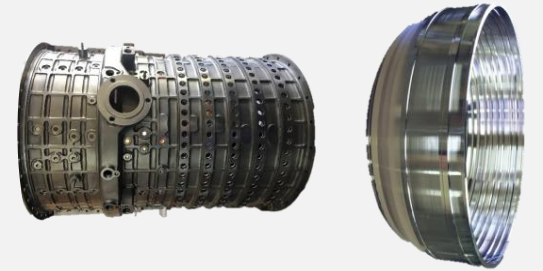


Significant growth opportunity

**Aftermarket**

Sales  
**25%**

## Commercial contracts



Balances profile of portfolio and  
supports partnerships' focus

**Original equipment**

A balanced business with strong foundation as a strategic partner

# Key customers per business model

Sales  
**55%**

**Civil RRSP partnerships**



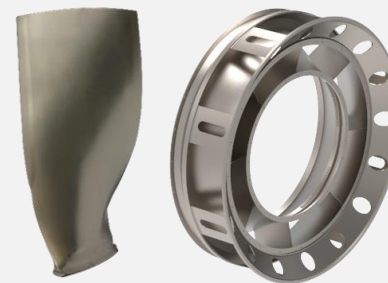
Sales  
**10%**

**Government partnerships**



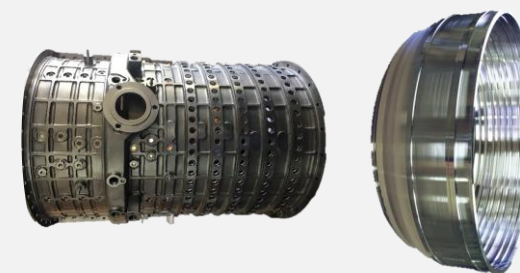
Sales  
**10%**

**Repairs**



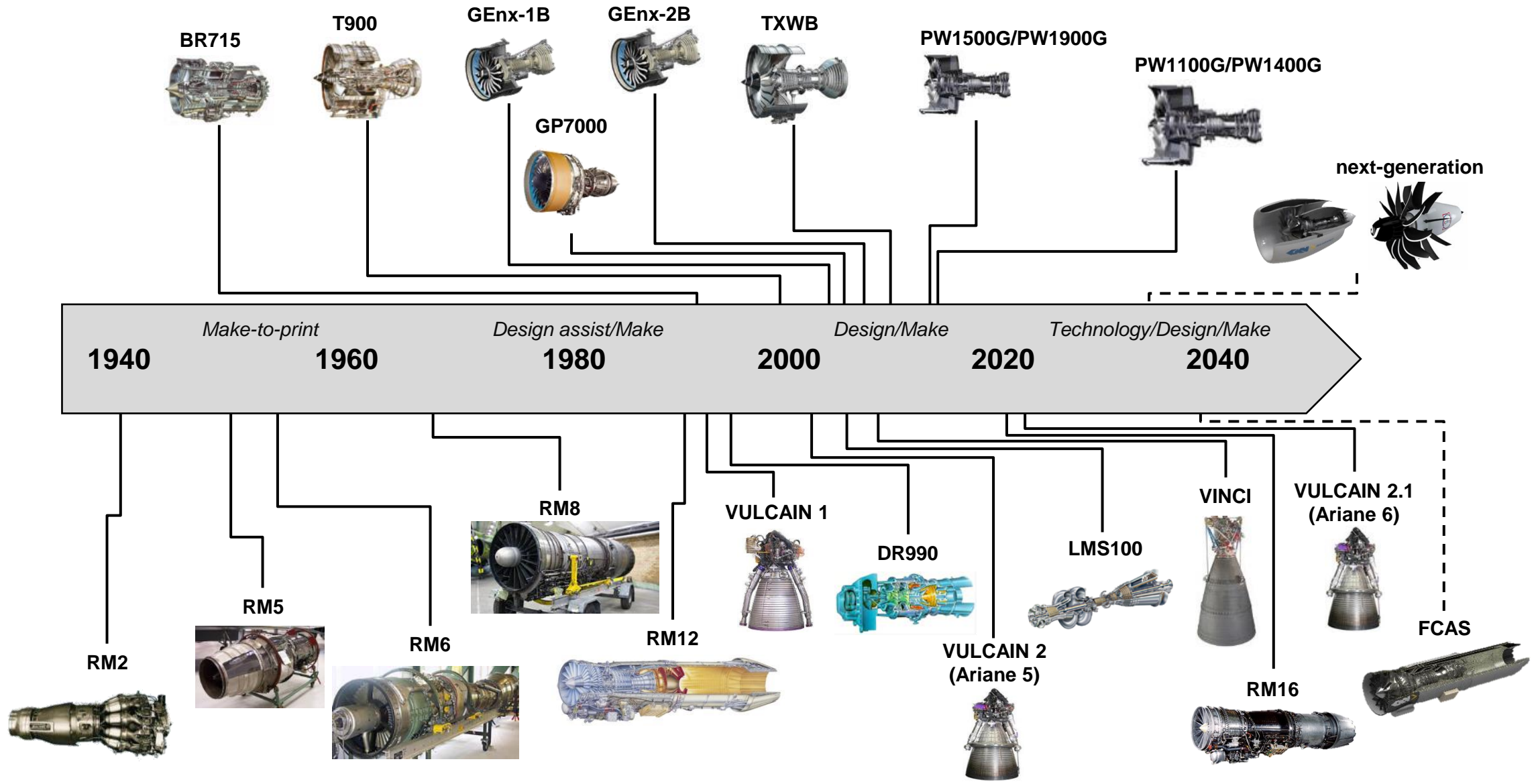
Sales  
**25%**

**Commercial contracts**



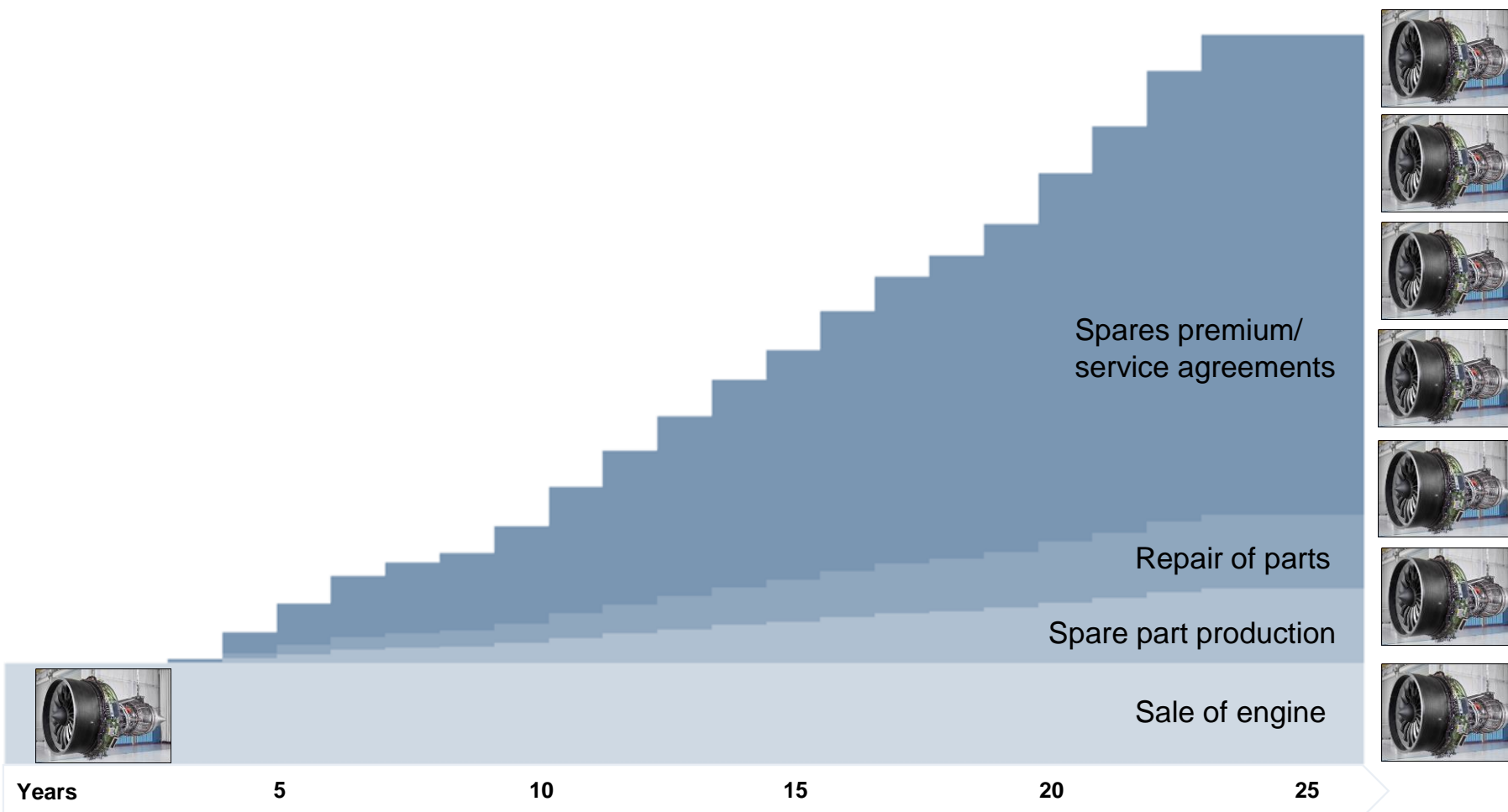
Independent partner with all major engine OEMs

# Example of our partnership legacy – life cycle ownership





# Partnership entitlement



- > Engines typically sold to the customer by the OEM at lower or even breakeven margin
- > OEM recoup investment in the aftermarket phase
- > Aftermarket service agreements exclusive to OEMs and their partners
- > Annual price escalations on aftermarket content are typically 2x the increase in price on new engine sales

# RRSPs entering ‘sweet spot’

## Scheduled shop visit activity for key GKN RRSP engines<sup>1</sup>

	Before first shop visit	1 shop visit complete	2+ shop visits complete
CFM56	47%	27%	26%
V2500	30%	35%	35%
GEnx	38%	59%	3%
XWB-84k	67%	33%	-
P&W GTF 24k	95%	5%	-
P&W GTF 30k	90%	10%	-

### Significant shop visits ahead

- > Aftermarket profits are made through shop visits and flight hour compensation
- > Three or more planned shop visits during the life of an engine, with 5-10 years between each visit
- > ~50% of CFM56 and 30% of V2500 have not had first shop visit

Vast majority of GKN engines have high-value shop visits ahead (LLPs<sup>2</sup>)

1. Shop visit data from AeroDynamic Advisory, April 2023  
2. Life-limited parts

# Way of working - business areas



# Engines business overview

## Business models

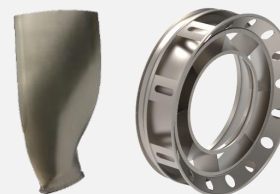
### Civil RRSP partnerships



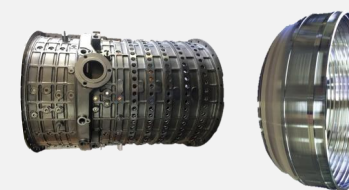
### Government partnerships



### Repairs



### Commercial contracts



## Business areas

Material  
solutions



OE product  
solutions



Repair  
solutions



Governmental  
solutions



# Desired alternatives to large castings and forgings

## Conventional

- Production starts with large castings and forgings

Casting

Forging

GKN  
production

## Additive fabrication

- Multiple smaller parts are combined into a more complex lighter component
- Built on decades of expertise and experience

## Benefits of additive fabrication

- Lower cost, improved quality and enhanced design flexibility
- Lower weight and reduced waste; much improved buy-to-fly ratio
- Reduced reliance on supply chain and delivery lead times
- Opportunity to supply to new customers

Casting

Forging

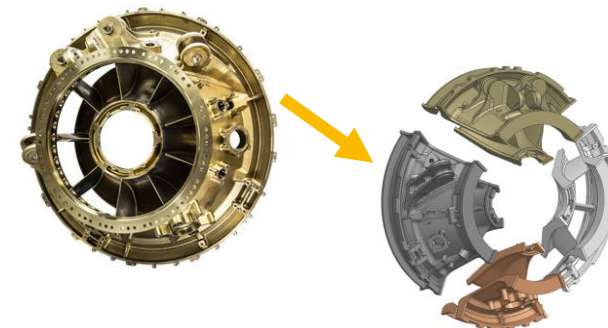
Laser metal  
deposition wire

Laser metal  
deposition powder

Laser powder bed  
fusion

Additive  
fabrication  
technology and  
knowhow

## Transformational capability



Interchangeable  
alternative to castings  
and forgings

GKN  
production

New  
customers

Game-changing unique additive fabrication capability provides fundamental improvements



# 20+ years of additive fabrication technology coming to fruition

## 2000 - 2015

### Research phase



- > First Laser Metal Deposition (LMD) cell
- > Partnership with Permanova
- > Extensive research and testing

## 2005 - 2015

### Start of production on simple applications



+

### Multiple complex demonstrators



- > First launch in 2008
- > Additive manufacturing of complex features
- > No load-bearing functionality
- > 2 parts in production

- > Extensive test campaigns
- > Extensive material characterisation

## 2015 - 2023

### Start of production on 'load-bearing' structures



- > GTF engine mount rings (A220 and E195) enter production (2023)
- > Permanova acquisition (2022)
- > Introducing LMD on multiple products
- > Significant pull from customers

Unique capability and know-how in laser welding for additive manufacturing (AM)

# Engines business overview

## Business models

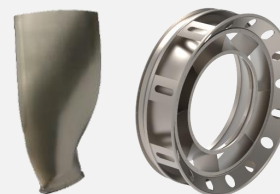
### Civil RRSP partnerships



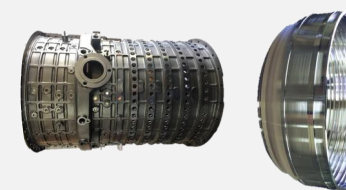
### Government partnerships



### Repairs



### Commercial contracts



## Business areas

Material  
solutions



OE product  
solutions



Repair  
solutions

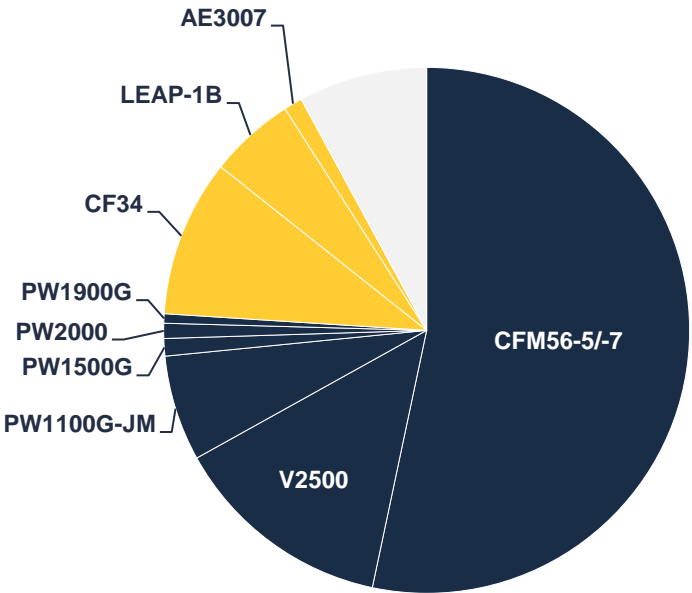


Governmental  
solutions



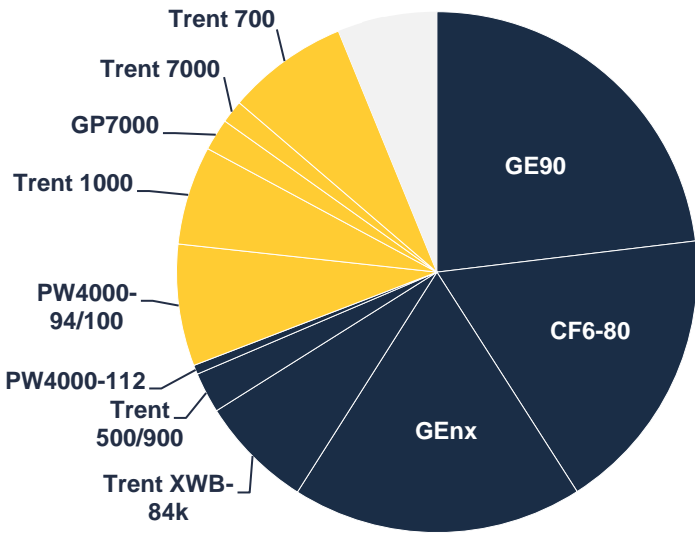
# Civil product offerings powering 90% of the fleet

**Narrowbody / Regional**

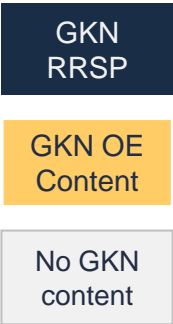


GKN RRSP on 75% of global narrowbody/  
regional flight hours

**Widebody**



GKN RRSP on 70% of global widebody  
flight hours

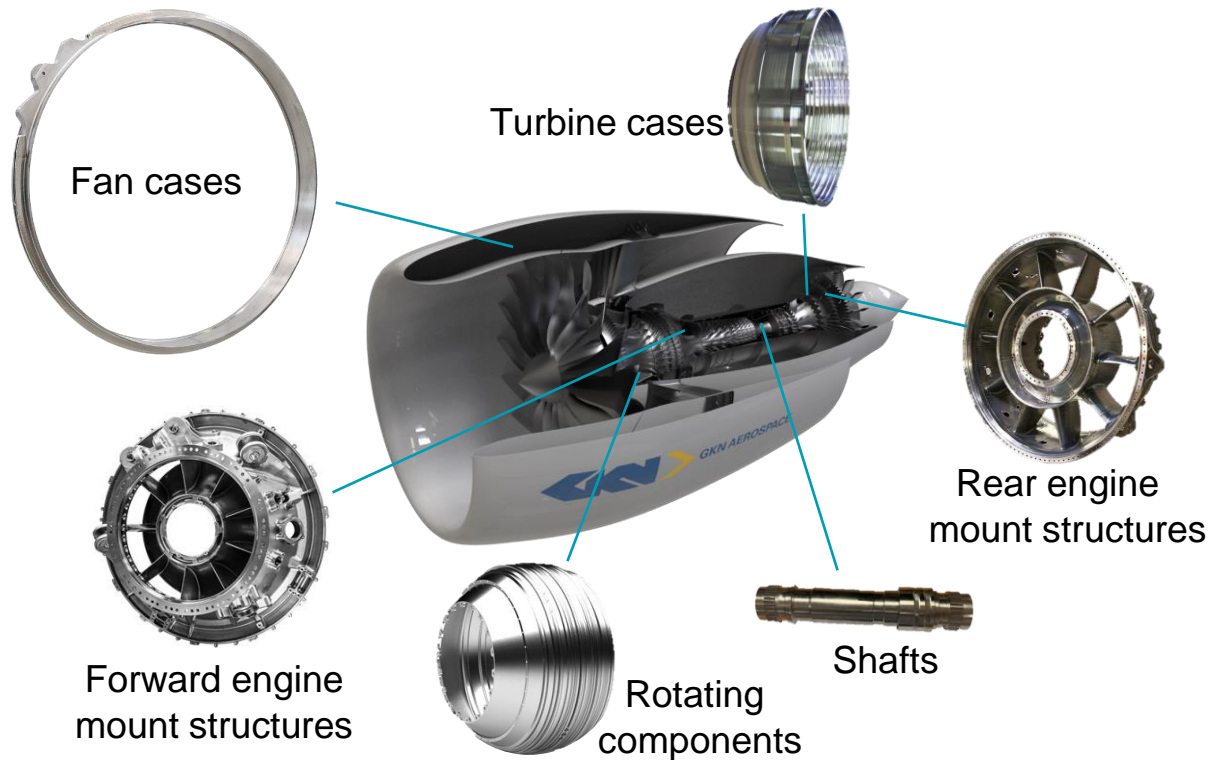


Source: AWIN; based on 2022 global flying hours

CFM56 and V2500 power 100% of legacy narrowbody aircraft and account for ~50% of total global flight hours

# Technology driven product specialisation

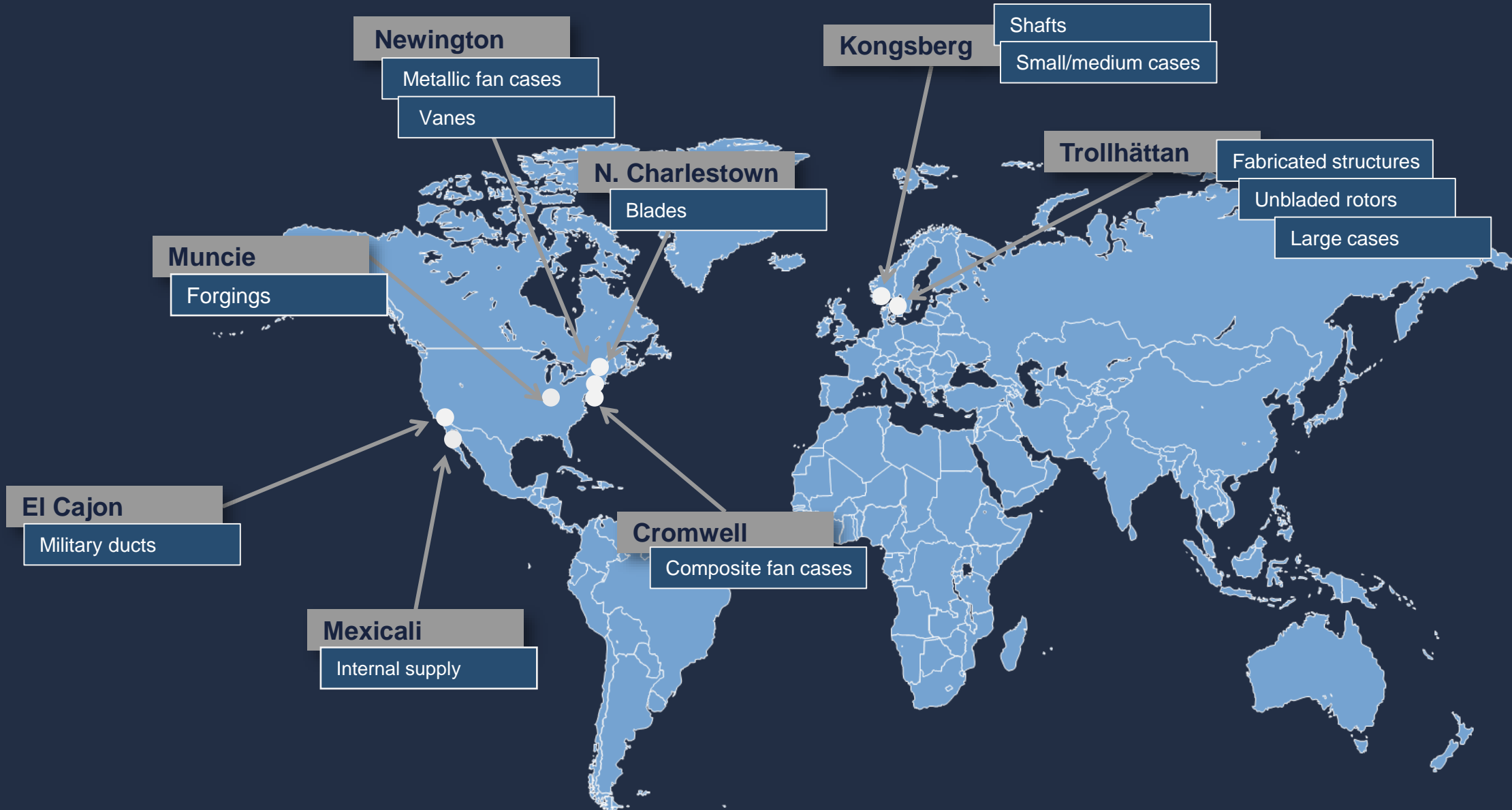
**Parts typically last life of engine**



- > Customer aligned product offerings
- > Focus on design/make with unique manufacturing IP
- > Both civil & military product offerings
- > Mainly structural parts designed to last the life of the engine

Technology-based partnership model builds long-term strategic relationship

# OE product centres





# Engines business overview

## Business models

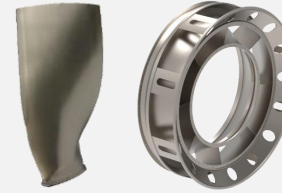
### Civil RRSP partnerships



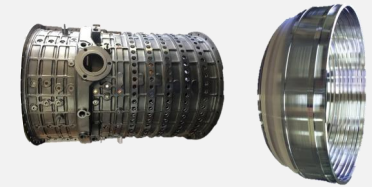
### Government partnerships



### Repairs



### Commercial contracts



## Business areas

Material  
solutions



OE product  
solutions



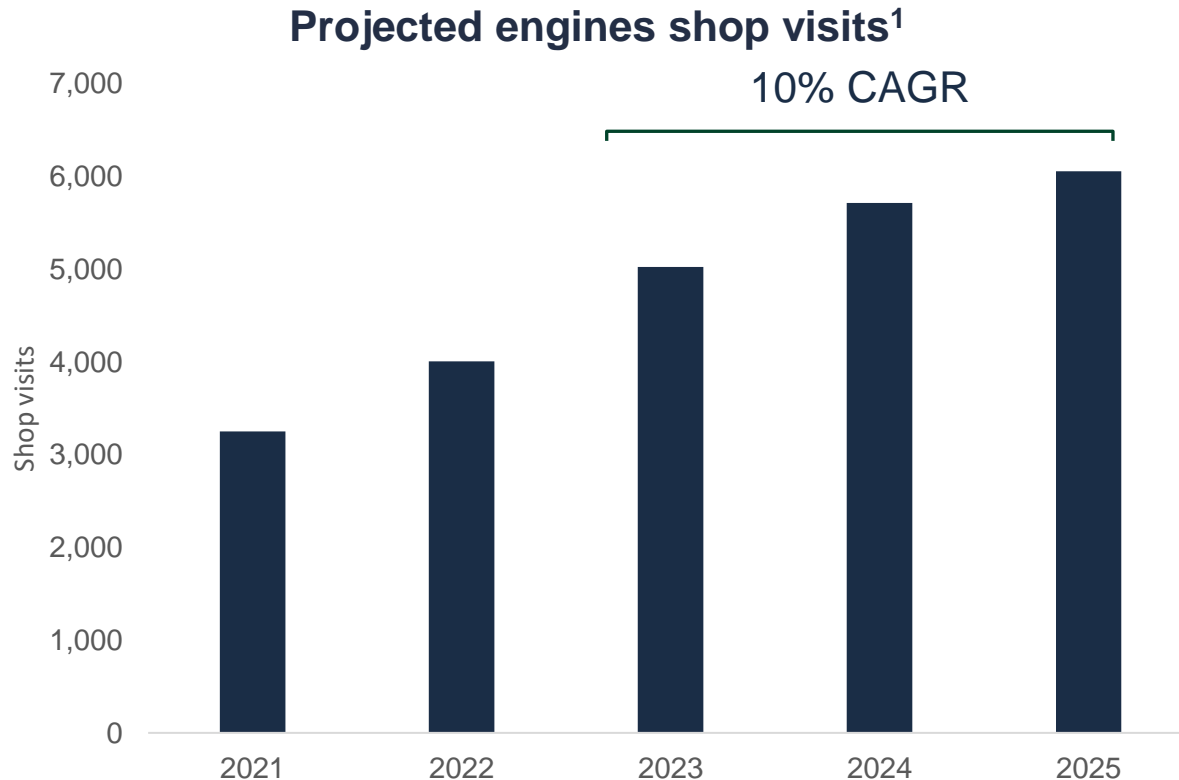
Repair  
solutions



Governmental  
solutions



# Outstanding growth opportunity in parts repair



## Highlights

- > Shop visits are growing rapidly, driven by flight hour recovery
- > OEMs keen to develop cost effective repair capability (versus replacement) as they are responsible for maintenance guarantees
- > Flight-critical nature of GKN products creates high barriers to entry and long lead time for new capacity to reach the market (3+ years)
- > GKN's unique position is built on investment in global repair capacity and certification, and strong OEM relationships
- > GKN's advanced technology capabilities seen as problem-solving solutions for hard-to-repair parts

**GKN repair business expected to double sales from 2023 to 2025**

1. Based on AWIN flight hour forecast data for target platforms CFM56, V2500, LEAP and GTF

# A certified global repair capability today

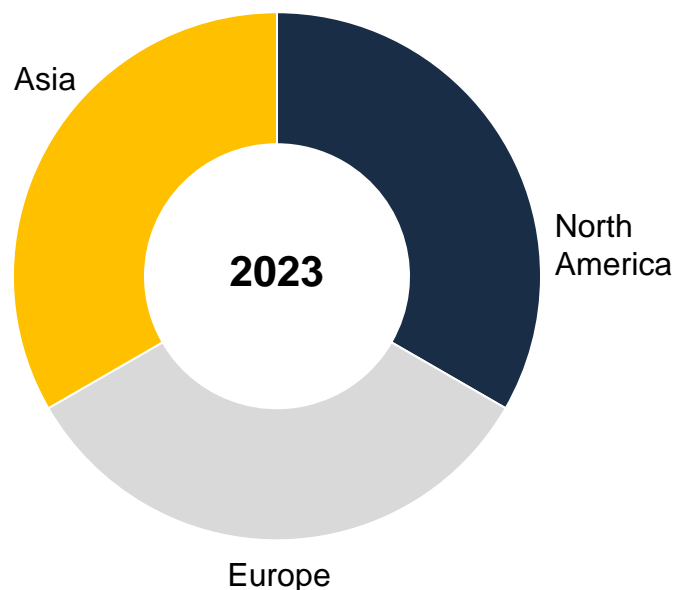
## GKN Aerospace repair portfolio



**10%**  
GKN Engines  
sales

**~75%**  
of GKN repair  
revenue from  
fan blades

## GKN Aerospace repair sales<sup>1</sup>



## GKN Aerospace unique capability

- > 80+ years in repair business
- > 3 sites globally (one new since 2022)
- > Certifications from EASA<sup>2</sup>, FAA<sup>2</sup>, CAAC<sup>2</sup>, and key OEMs (2+ years to achieve per site)
- > Established worldwide customer base of over 500 customers
- > £65 million capex investment in repair business under Melrose ownership

Certification, scale and customer relationships are substantial barriers to entry

1. Sales by end market region

2. EASA = European Union Aviation Safety Agency. FAA = Federal Aviation Administration. CAAC = Civil Aviation Administration of China

# Expanding repair capacity, capability and portfolio

## Footprint expansion

**Expanded**  
Sweden 2021  
10,000 m<sup>2</sup>



**Moving to new site**  
US 2024  
15,000 m<sup>2</sup>



**New site**  
Malaysia 2022  
10,000 m<sup>2</sup>

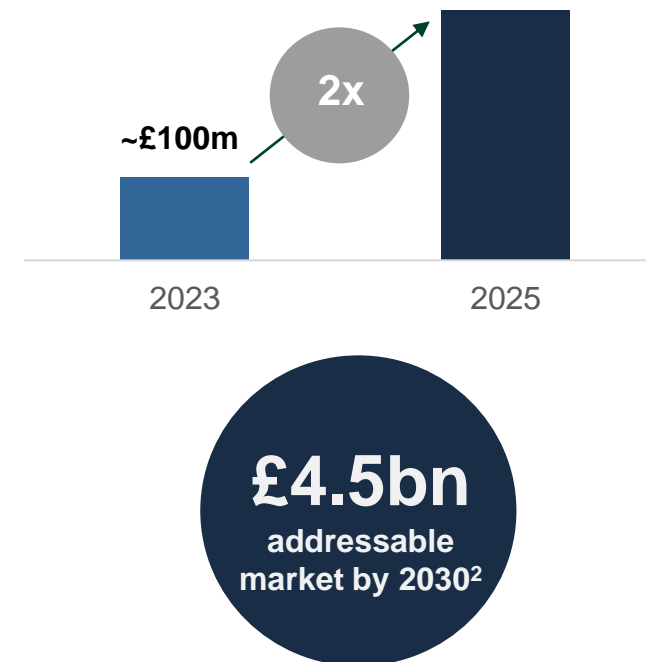


## Portfolio expansion

Parts	Market share
Fan blades	~40%
Fan disks	<10%
Cases and Structures	<10%
Composite parts	<10%
Blisks/IBR <sup>1</sup>	Starting 2023

**Leveraging manufacturing technology**

## Revenue growth



**Doubling sales from 2023 to 2025 - more upside beyond**

1. Integrally bladed rotors  
2. Projected market by 2030. Source: AeroDynamic Advisory Market Research

# Engines business overview

## Business models

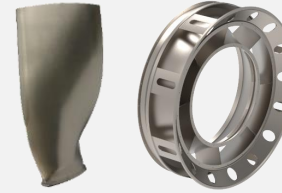
### Civil RRSP partnerships



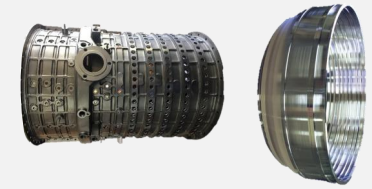
### Government partnerships



### Repairs



### Commercial contracts



## Business areas

Material  
solutions



OE product  
solutions



Repair  
solutions



Governmental  
solutions

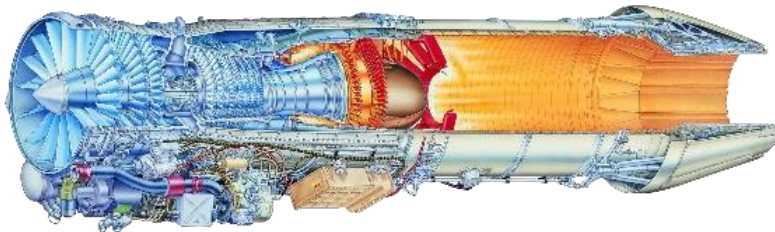




# 90-year strategic relationship with the Swedish Air Force



**RM12 / Gripen C/D**



## **‘OEM-level’ scope of responsibility**

- > Research and technology leadership
- > Demonstrators
- > Design / Product developments
- > Systems engineering
- > Production
- > Engine testing
- > Upgrades
- > Product support / Aftermarket / Life tracking system

## **Business growing from £100 million to £140 million by 2025**

- > National interests require competent domestic capability and capacity
- > Upfront funded, long-term and stable business (over time and cycles)
- > Capability investments funded by Government

Well-positioned for growth based on OEM capability

# Potential for additional combat air support



- > Swedish authorities are working on a potential combat air support package including information and training on the Gripen C/D system
- > In October 2023, as part of a wider range of Swedish military support for Ukraine, the Swedish government presented an assignment to the Swedish Armed Forces to analyse and report on the conditions for providing a transfer of Gripen aircraft to Ukraine
- > Supply of aircraft is conditional on Sweden obtaining NATO membership
- > GKN Engines continues to operate under the existing contractual relationship and is currently supporting the authorities by answering any queries they have

# Full engine capability



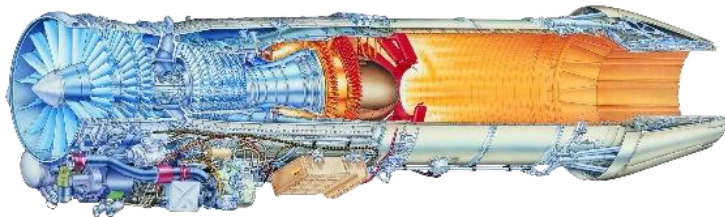
**RM12 / Gripen C/D**



**RM16 / Gripen E**



**Future Combat Air System**



# Truly diverse technology-driven, class-leading business

Material  
solutions

OE product  
solutions

Repair  
solutions

Governmental  
solutions

① OEM-level capability

Our full engine understanding and capabilities gives us a competitive edge from design for manufacturing to improving performance of our customers' engines

② RRSPs portfolio with all major engine OEMs

Long-term partnerships with all major engine OEMs gives GKN Engines unmatched abilities to introduce our key technologies and grow our business with the right customer for the right product & programme

③ Proprietary GKN breakthrough technologies

Decades of research & development, skilled people and fabrication expertise has placed GKN Engines in pole position to meet industry challenges, based on our proprietary material solutions