

*Presented by:*

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## **Maintenance Program Opportunities for Newer Aircraft**

**Singapore – 26 September 2016**

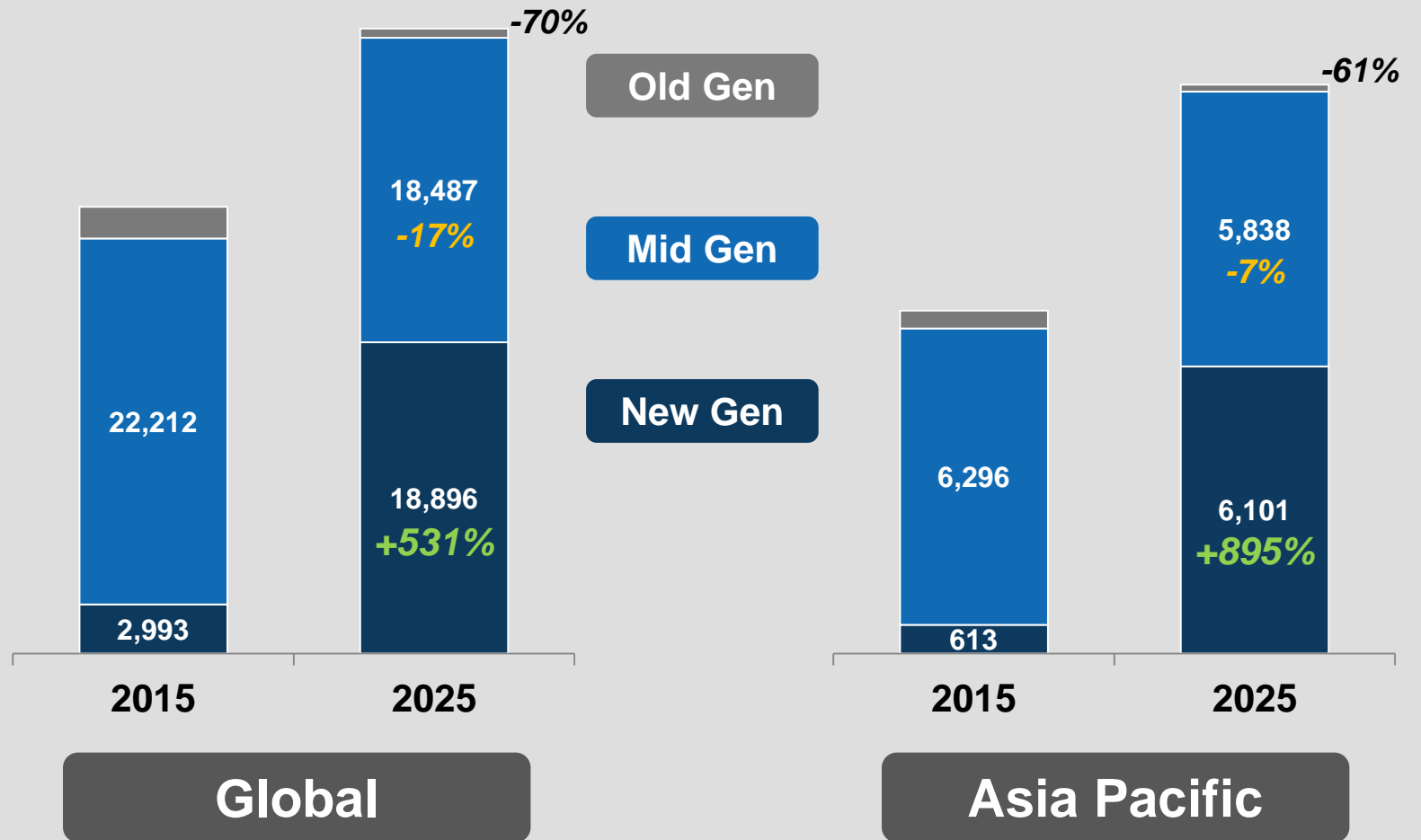




# Impact of New Technology Aircraft

In the next decade, the global fleet of new generation aircraft fleet will grow by approx. 531% to nearly 19,000 aircraft

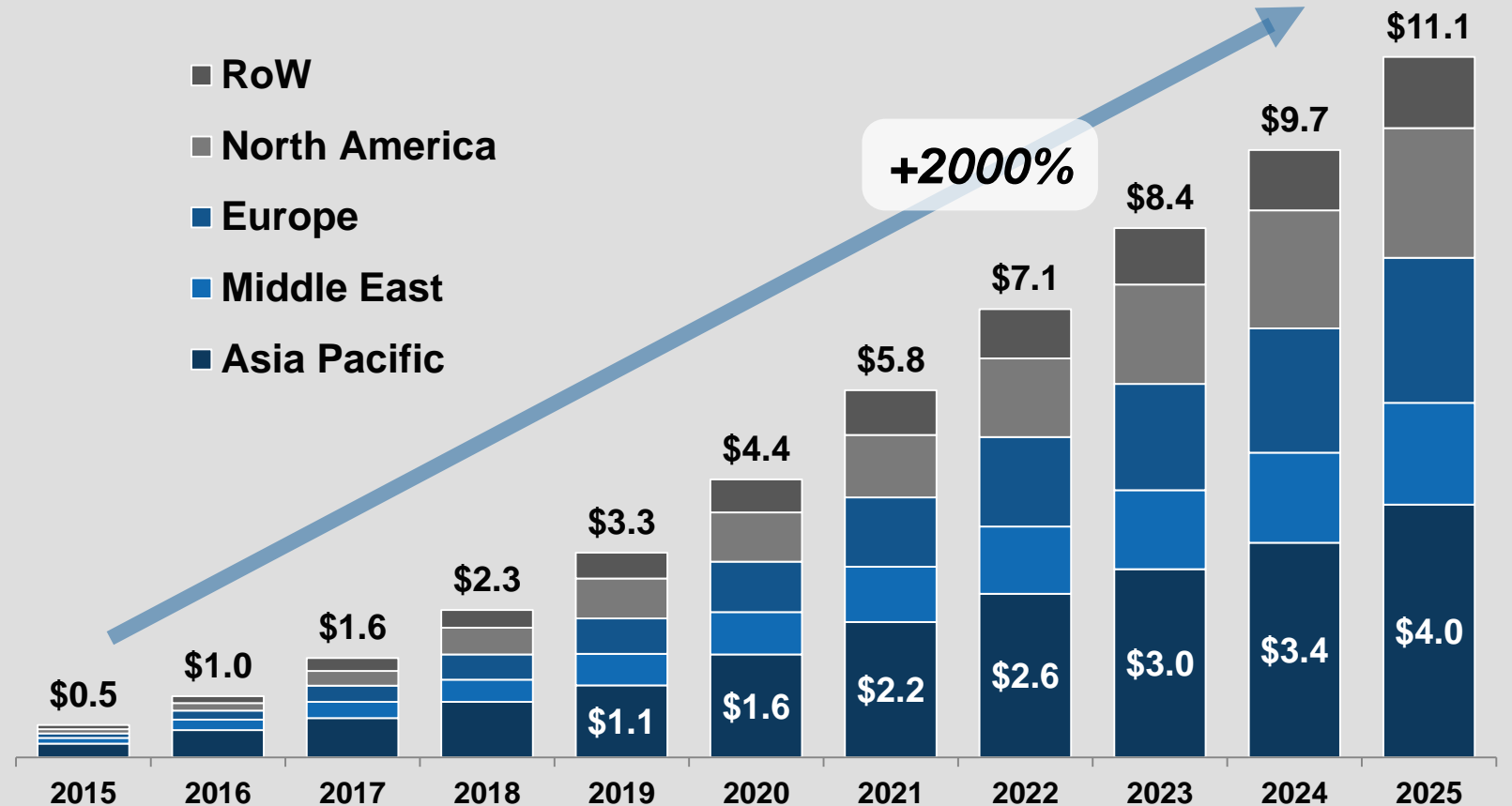
### 10-Year Fleet Forecast by Aircraft Generation



Source: ICF International  
 Old Gen: 727, 737 Classic, 747 Classic, DC10, L1011, A300  
 Mid Gen: 757, 767, 747-400, A320 Family, A330/A340, 737NG, 777, ERJ, CRJ  
 New Gen:, 777X, 787, A350, A330neo, A380, E170/175/190/195, CRJ-7/9/1000, 737MAX

Over the next decade, MRO spend on new technology A350 & Boeing 787 aircraft will double every three years

10-Year MRO Spend for New Technology A350 & 787 Aircraft  
\$ USD Billions

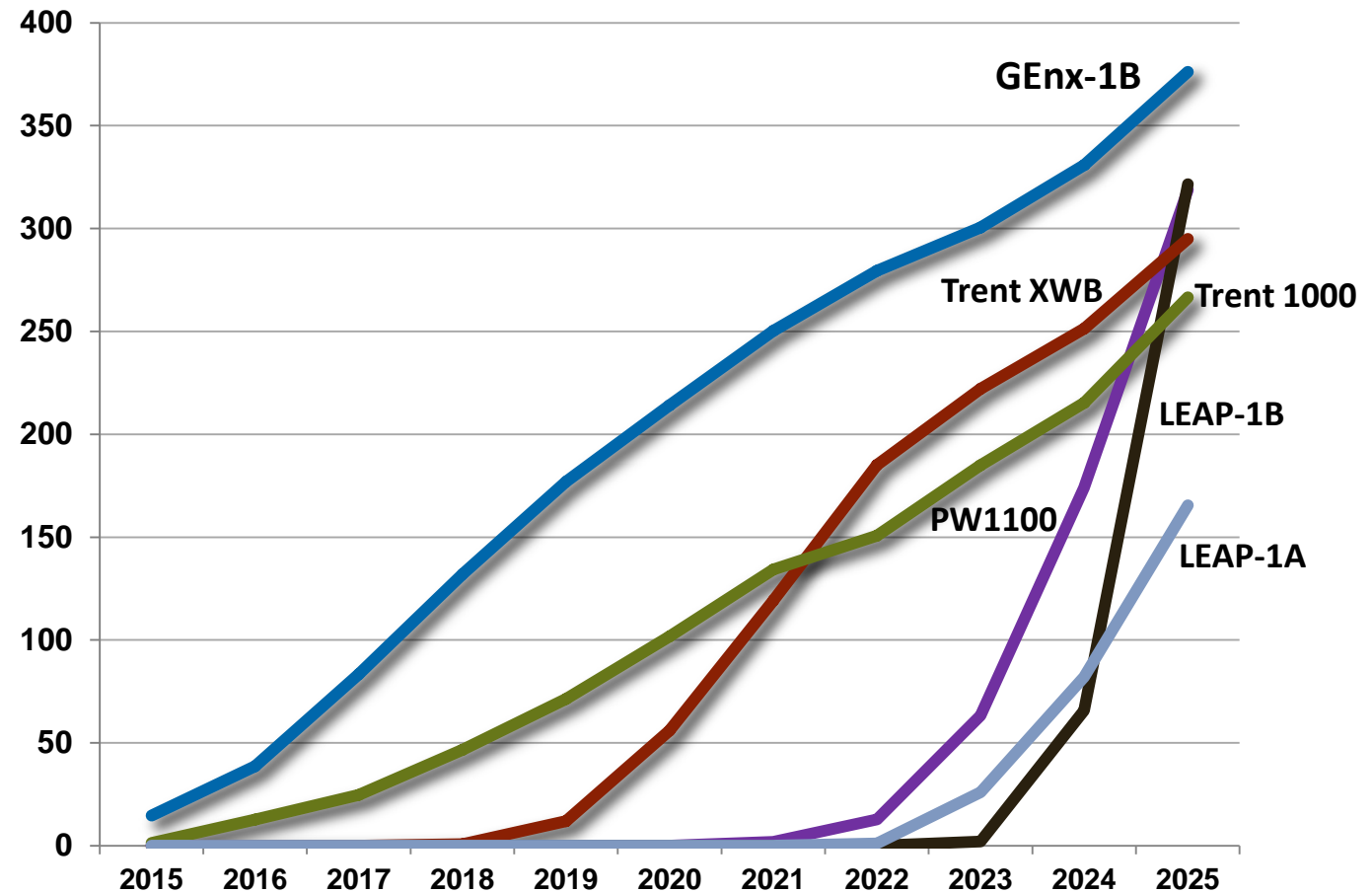


# Challenge: How best to manage the expected growth in new engine shop visits?

## Key issues:

- When to partner (and who with?)
- Continued popularity of OEM flight hour contracts
- Finding the balance between OEM, partner and independent shops

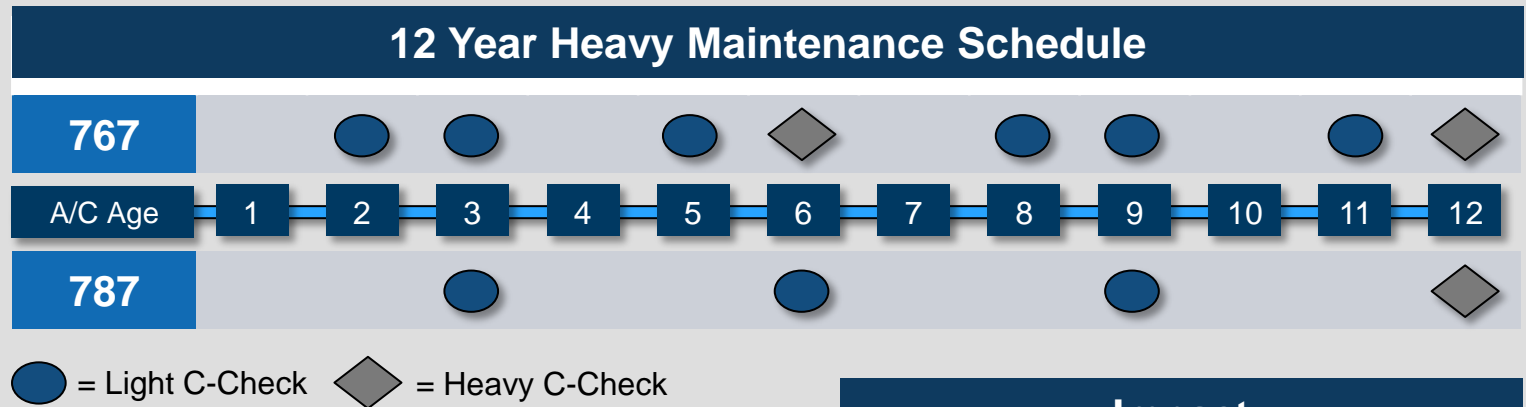
### 2015 – 2025 Engine MRO Shop Visit Forecast (Key New Engine Models)



# New technology aircraft challenge traditional MRO sourcing strategies

## Return on investment challenges:

- Facilities
- Tooling & Equipment
- Training
- IT Systems



	Impact		
	Volume (C-checks)	Intensity (man-hours)	Days (Hangar)
<b>767</b>	8	95,000	136
<b>787</b>	4	33,000	47

- **Cost Savings:** ~65% fewer routine airframe heavy maintenance man-hours drives an estimated savings of ~\$3.5M
- **Asset Utilization:** ~90 additional available flying days enables increased revenue generation potential

\*Based on 4,000 FH/yr utilization

767 C-check = 18mo, 4C = 72mo; 787 C-check = 36mo, 4C = 144mo

Assumed industry standard labor man-hour rate

Aircraft out of Service (AoS) calculated for C/4C/8C checks assuming industry standard MRO hangar productivity

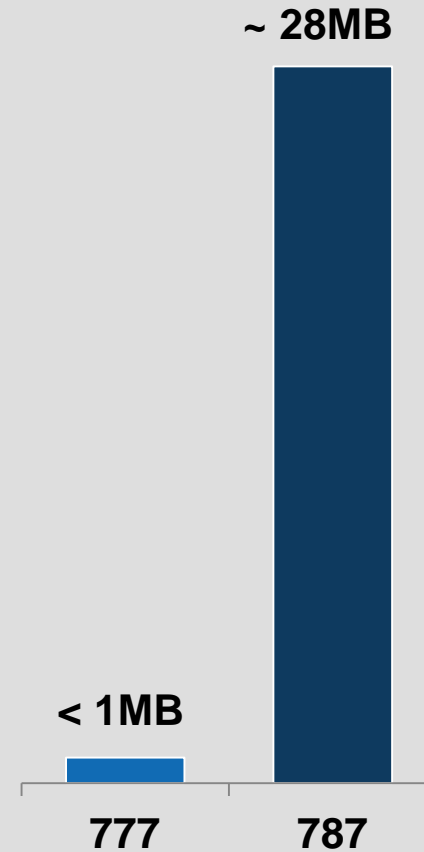
# Challenge: How best to realize value from the disparate terabytes of data generated by new technology aircraft

**Stakeholder Battle: Who will control and profit from the operating data IP?**

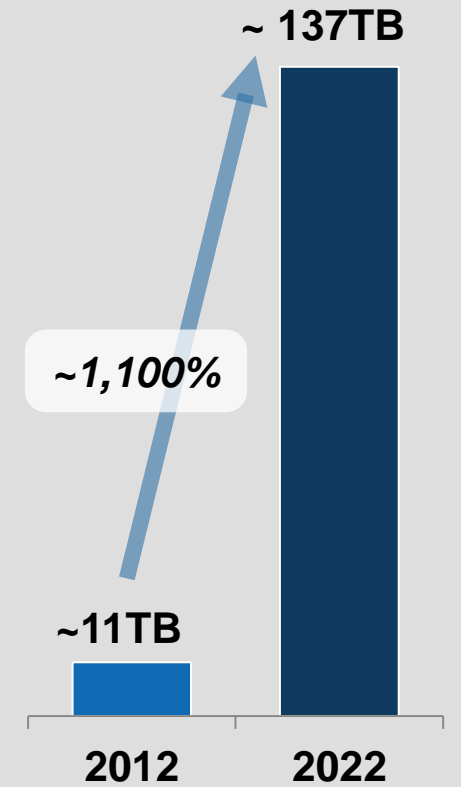
- Operators
- Lessors
- OEMs
- MRO Suppliers



**Number of AHM Parameters**



**Transmittable Data (MB/Flt)**



**A/C Data Generated (TB/Year)**