

Middle East MRO Market Outlook



January 2009

Presented by
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Agenda

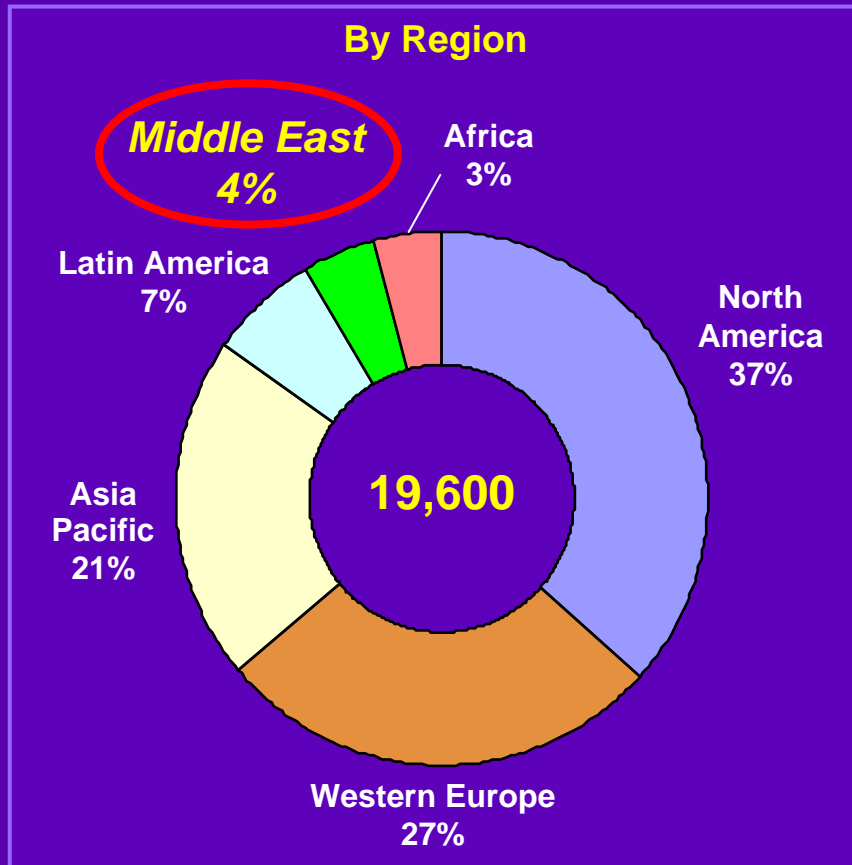
MRO Market Forecast

MRO Market In The Short Term

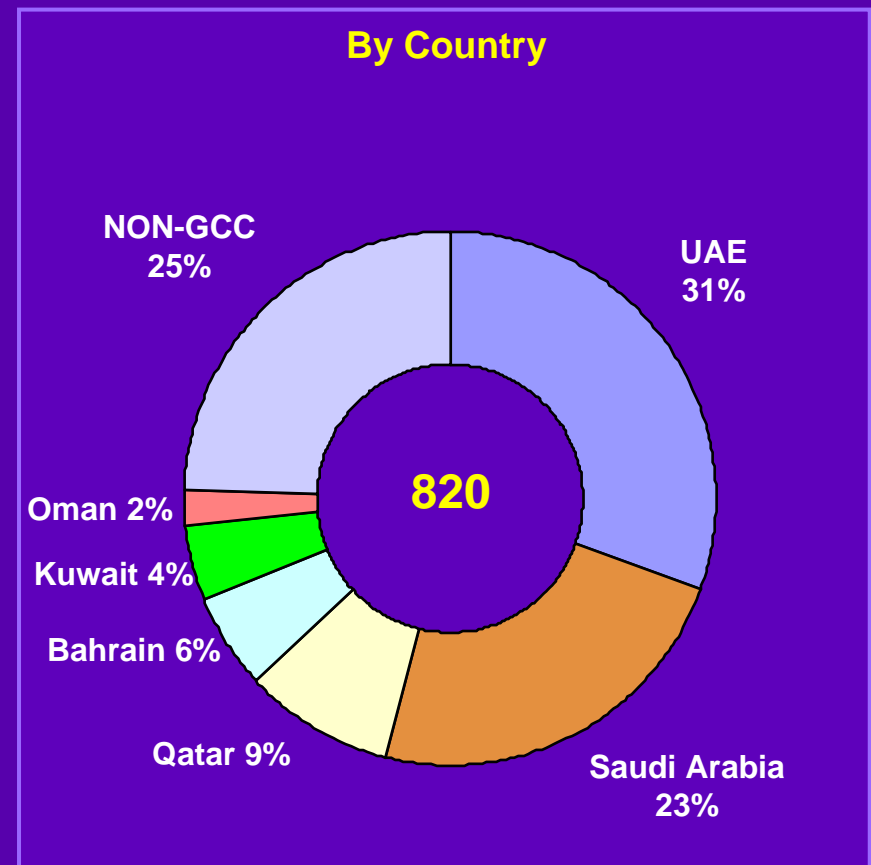
Middle East MRO Market Issues

The Air Transport Fleet Is 19,600 Aircraft; GCC Countries Account For 75% Of The Middle East Fleet

2008 Air Transport Fleet

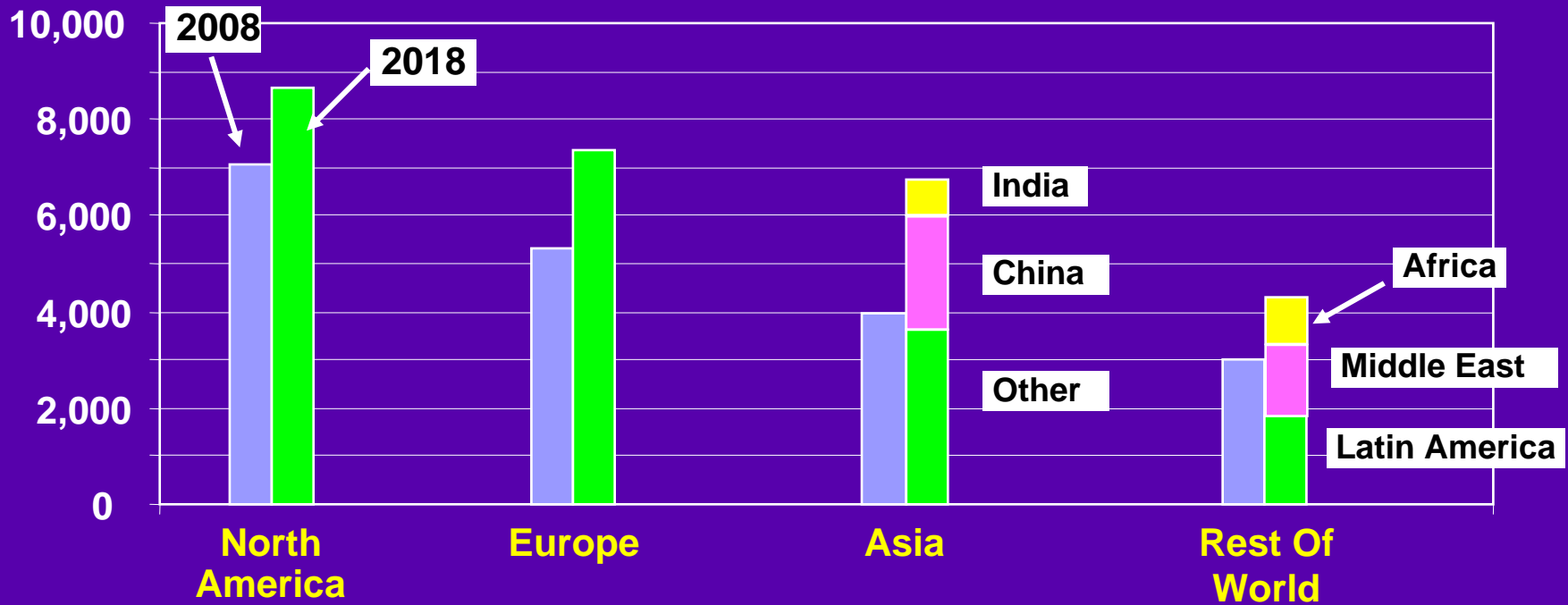


2008 Middle East Fleet



In 10 Years Time, The European And Asia Fleets Will Be Catching Up With North America

2008-2018 Air Transport Fleet Development



CAGR	2.0%	3.2%	5.2%	Middle East 4.6%
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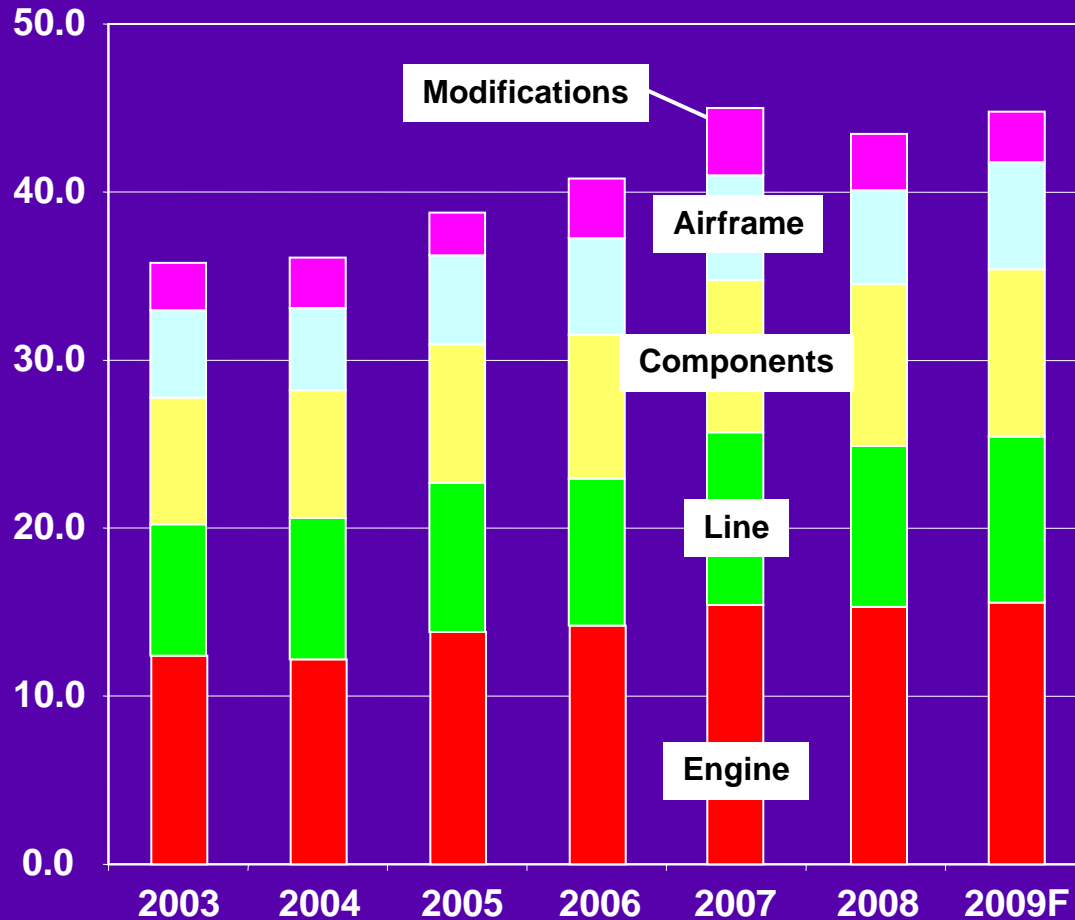
The global fleet grows at 3.3% per annum to 27,000 aircraft in 2018

AeroStrategy's Latest Fleet Forecast Inevitably Shows Significant Differences From One Year Ago!

	January 2008	January 2009	
2008 – 2009 Global GDP Growth Rate	3.3%	1.7%	
2009 – 2010 Global GDP Growth Rate	3.3%	2.7%	
2009 & 2010 New Aircraft Deliveries	2,680	2,300	Down 15%
2009 & 2010 Retirements	478	584	Up 22%
2017 Fleet Size	27,950	26,500	Down 5.5%
10 Year Fleet Growth CAGR	4.0%	3.3%	Down 18%

2008 Air Transport MRO Spend Peaked At \$45B In 2007; 2009 Is Still Expected To Be Below This Level

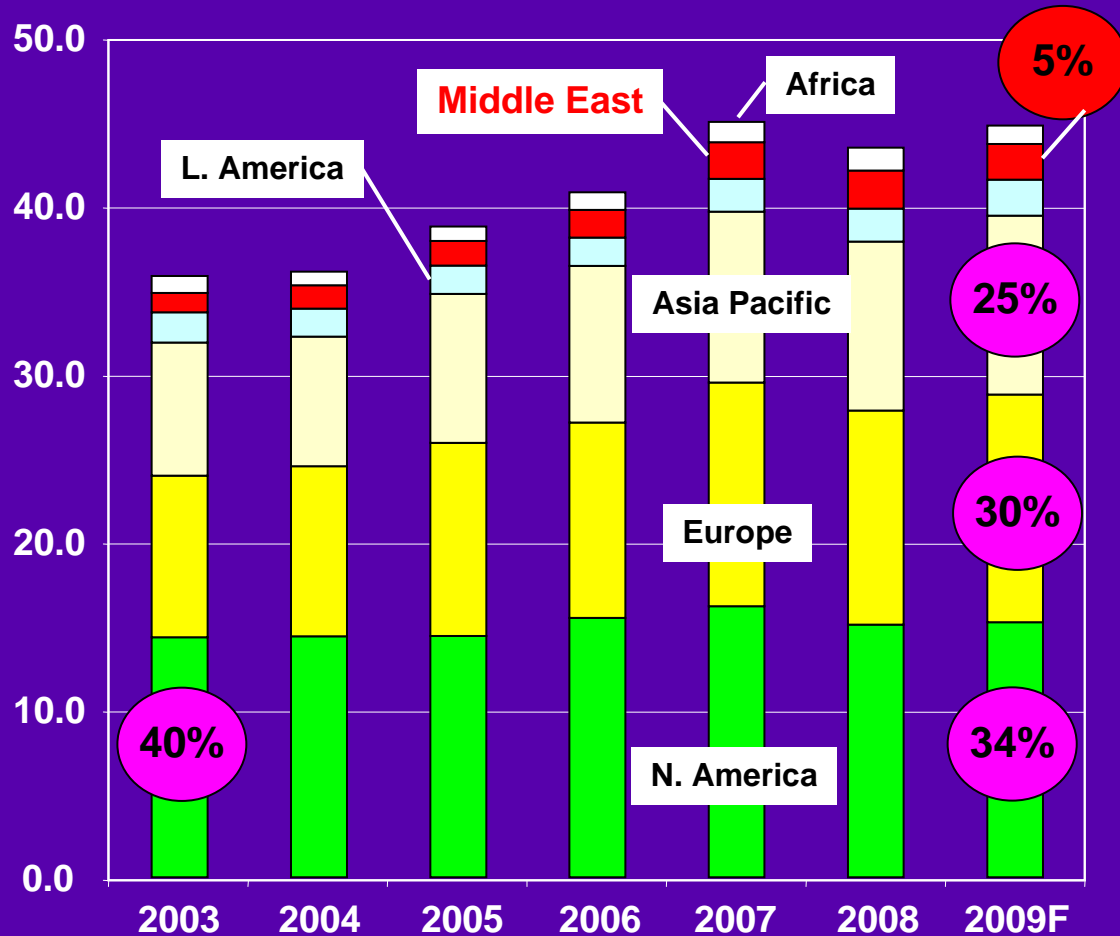
2003-2009 Global MRO Market (\$B)



- 2008 and 2009 total spend likely to be lower than 2007
- Correction in 2008 with approximately 5%-6% of fleet removed from service with high fuel prices, airline failures and recession impact
- 2008 global MRO spend approximately \$43.5B
- 2007 a peak year, driven by fleet demographics
- Engine overhaul is the largest driver of MRO spend – about 35% of the total
- Annual growth rate over whole period is 3.8% per annum

Middle East MRO Market Has Shown The Most Rapid Growth Since 2003

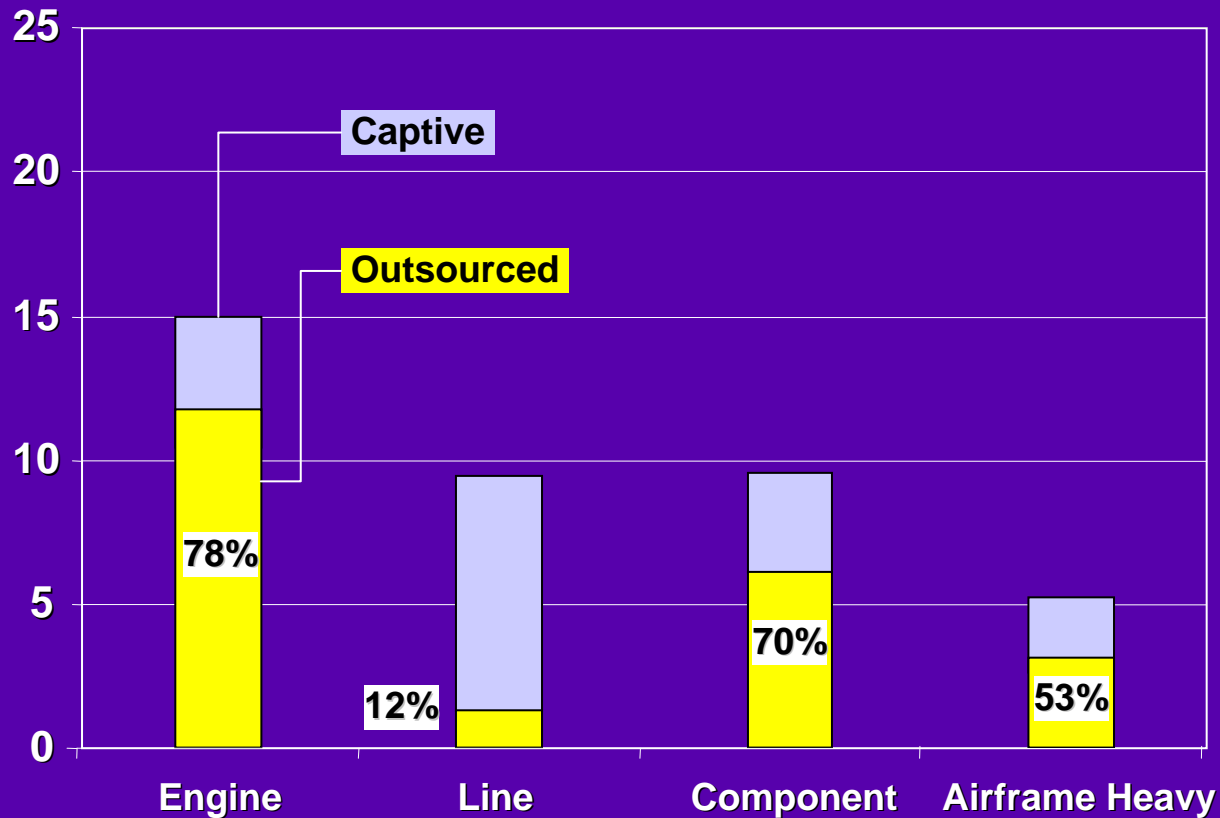
2003-2009 Global MRO Market (\$B)



- North America remains the largest driver of MRO spend – at 34% of spend in 2009
- However, this share is in decline – from 40% in 2003
- Asia Pacific share has grown from 21% to 25%
- European operators will generate 30% of MRO demand in 2009
- Middle East MRO spend will account for 5% of the total in 2009 – about \$2.2B
- Middle East MRO market shows the highest regional growth rate over the period - 10.5% per annum

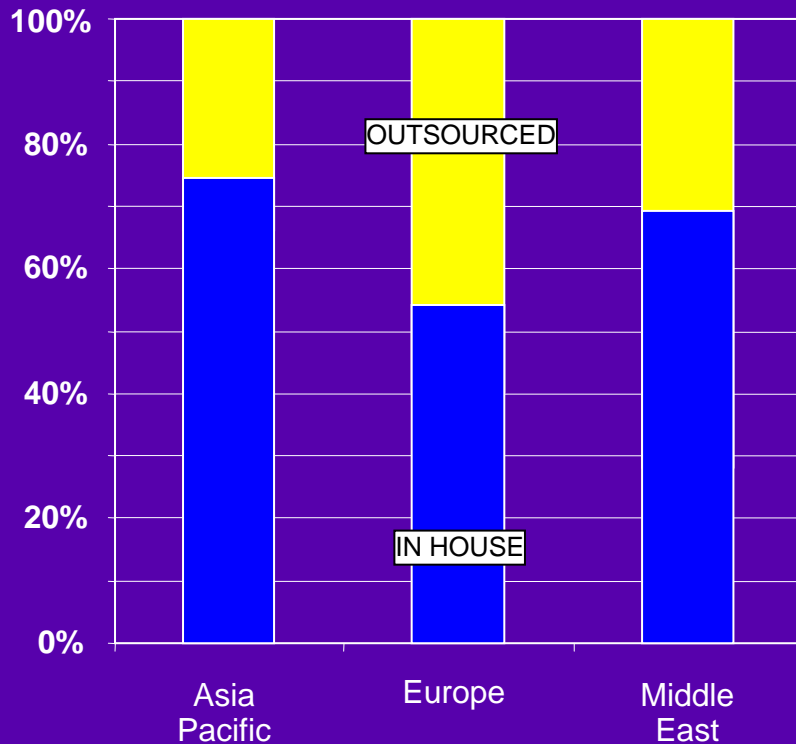
Today About 57% Of Global Spend Is Outsourced (\$24B) *

2008 Supply Structure By Market (\$B)

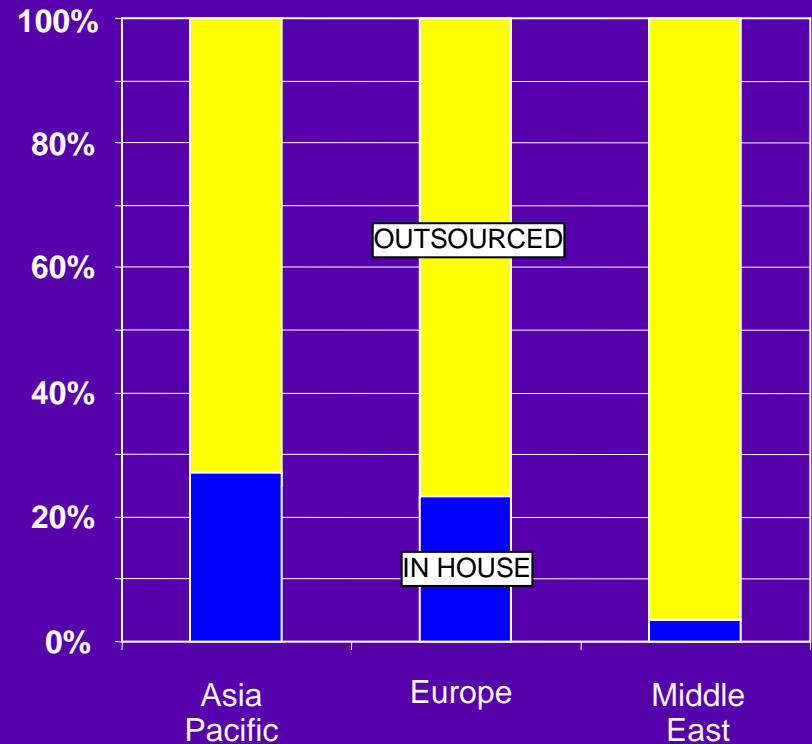


Outsourcing Practices Vary By Region And Type Of Maintenance

2008 Airframe Heavy Maintenance Outsourcing By Region



2008 Engine Overhaul Outsourcing By Region

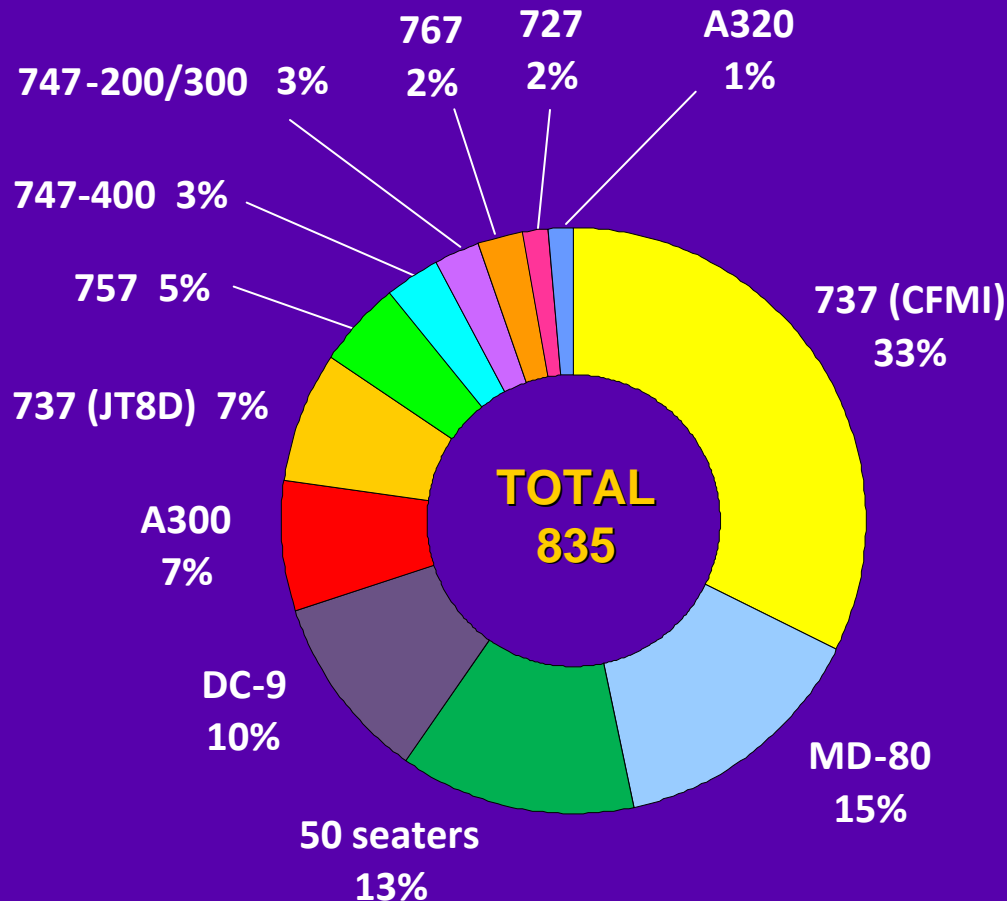


Agenda

MRO Market In The Short Term

Airlines Have Already Announced Plans To Park/Retire More Than 830 Aircraft

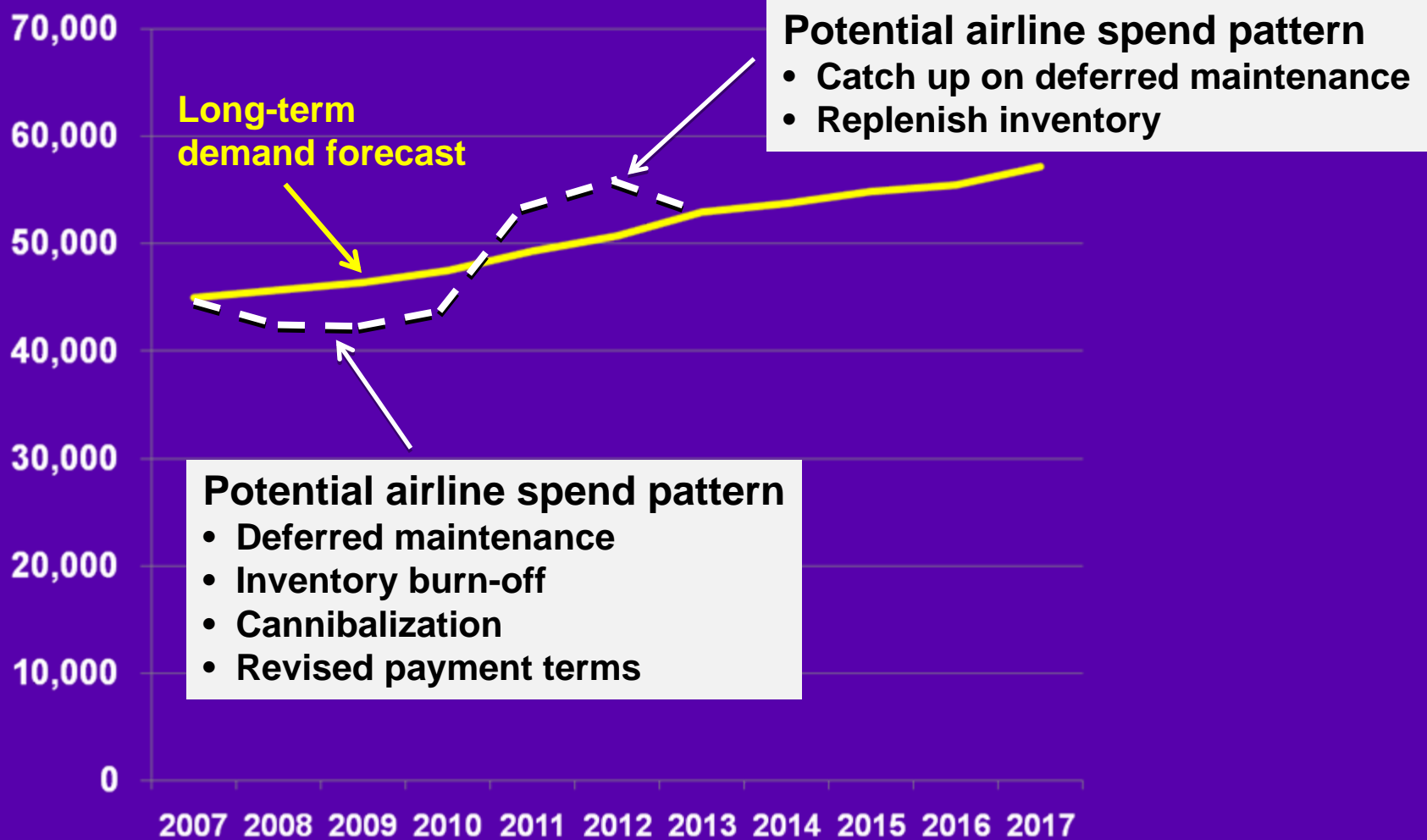
2008 and 2009 Fleet Reductions By Aircraft Type



- Airlines have announced plans to retire or park more than 830 aircraft in the 2008/2009 timeframe, which are heavily concentrated in North America
- The actual number of removals will likely be closer to 1,000....although airline fleet plans are highly contingent on fuel prices and economic conditions
- Factoring in 200-300 retirements in a normal year...this amounts to a 4% global air transport fleet reduction

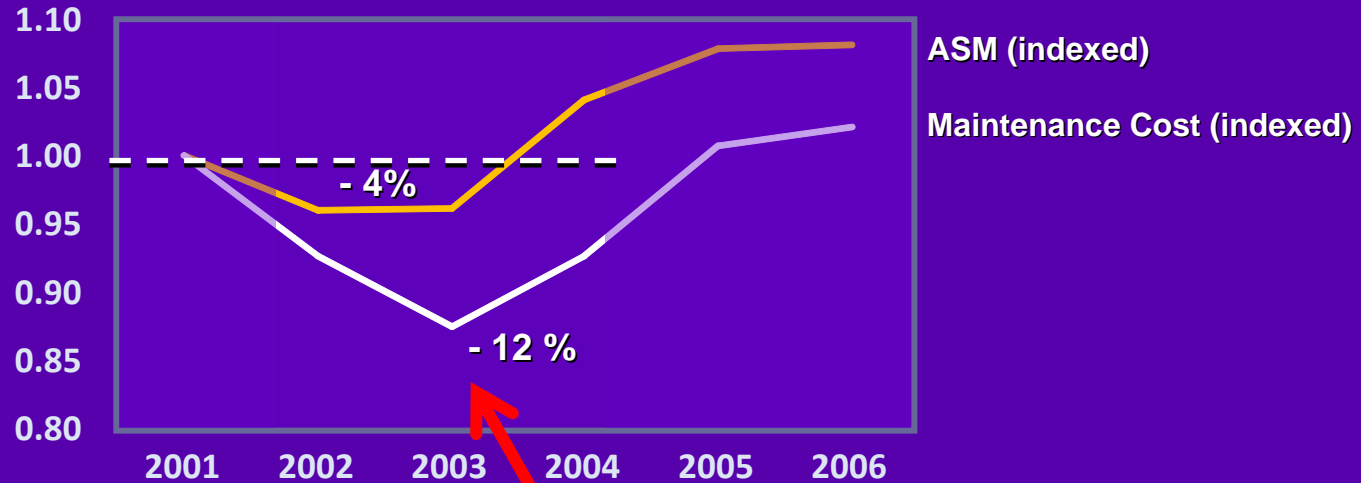
Air Transport Airline MRO Spending Will Likely Follow An S-Shaped Curve

Air Transport MRO Market – (\$M) *



US Carriers Reduced Capacity By 4% In 2002/2003 And Maintenance Spending Fell 12%

US ATA Members: Maintenance Costs Versus ASMs 2001 - 2006



Reduction In
Airline Capacity

- 4 %

Airline Use Of
Maintenance "Buffers"

- Burn inventory
- Defer maintenance
- Surplus
- Cannibalization

Short-Term
MRO Spend
Impact

-12 %

However, Not All Markets And Suppliers Will Be Impacted By The Downturn Equally

Least Impacted

- New generation aircraft (e.g., A320, A330/340, B737NG, B777, E190)
- New generation engines (e.g., V2500, CFM56-5/7, GE90, TRENT)
- Leased fleets
- Low cost carriers with strong balance sheets
- Certain Asia-Pacific and Middle East markets

Most Impacted

- Old generation aircraft (e.g., B737-3/4/500, MD80, DC9, DC10)
- Old generation engines (e.g., JT8D std, JT8D-200, CF6-50, CF6-80A)
- 50-seat regional jets and associated engines (CF34, AE3007)
- North American market
- Discretionary modifications

**Current estimate: overall 5-10% MRO spend decline in 2009
BUT impact varies considerably by supplier/OEM**

Agenda

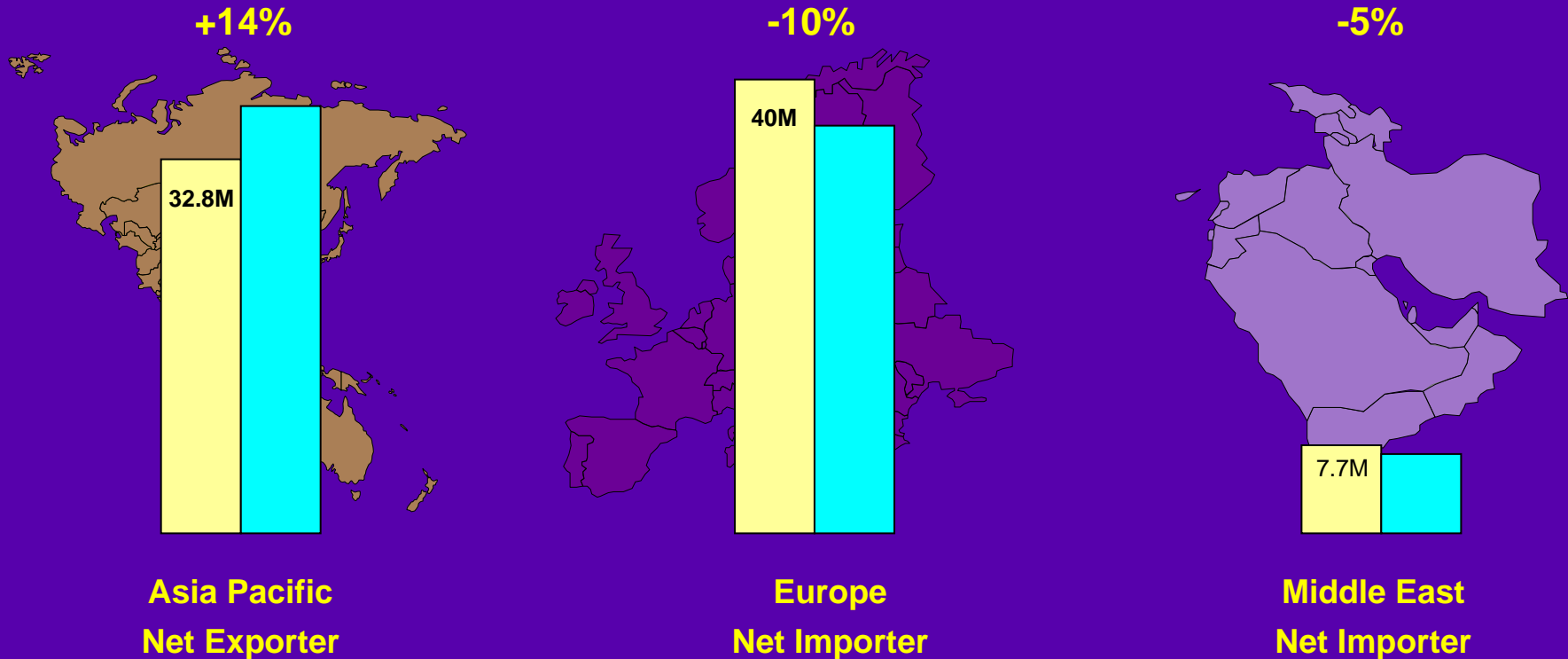
Middle East MRO Market Issues

There Are Several Issues/Factors Impacting The Global And Middle East MRO Market Today

Issue / Factor	Implications
<ul style="list-style-type: none"> ▪ GDP and traffic growth is slowing 	<ul style="list-style-type: none"> ▪ Supply base should expect cuts in utilisation and lower MRO spend in the short-term (smaller work scopes, deferred maintenance, less discretionary spend)
<ul style="list-style-type: none"> ▪ India growth is slowing 	<ul style="list-style-type: none"> ▪ Airline consolidation is happening ▪ Driven by excess capacity, vicious price wars and very high fuel prices ▪ Slowing of growth is a good thing!
<ul style="list-style-type: none"> ▪ Uncertainty at DAE 	<ul style="list-style-type: none"> ▪ Less competition for resources and customers in Western Asia
<ul style="list-style-type: none"> ▪ Skills availability 	<ul style="list-style-type: none"> ▪ Shortage of skilled labour is well known in Asia Pacific and will continue to exist despite slower growth ▪ Labour rates on the increase, decreasing competitiveness relative to higher cost regions for airframe maintenance

Middle East Is A Net Importer Of Airframe Heavy Maintenance, Generating More Manhours Than It Supplies

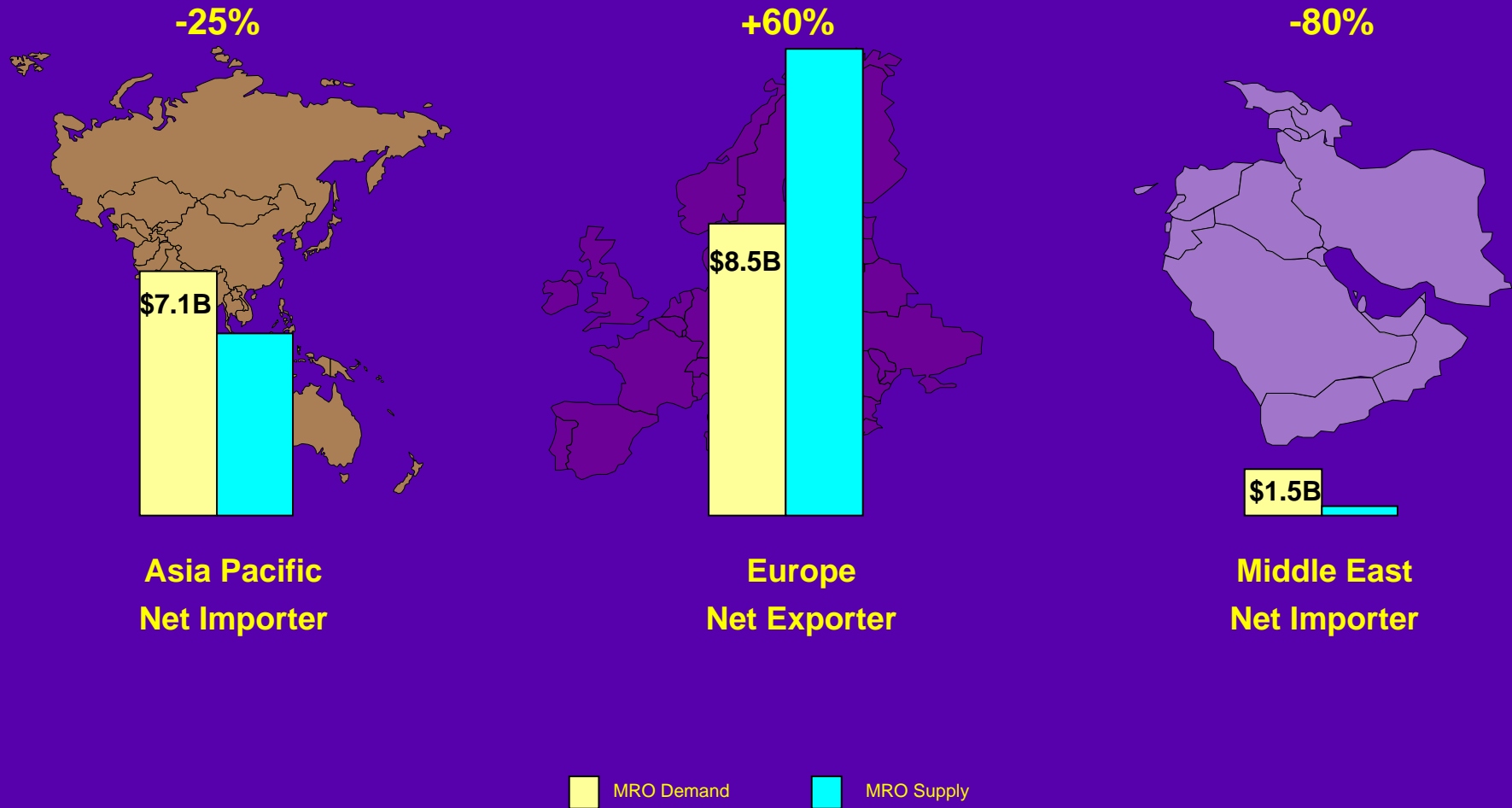
Airframe Heavy Maintenance Demand And Supply (Manhours)
By Region



■ MRO Demand ■ MRO Supply

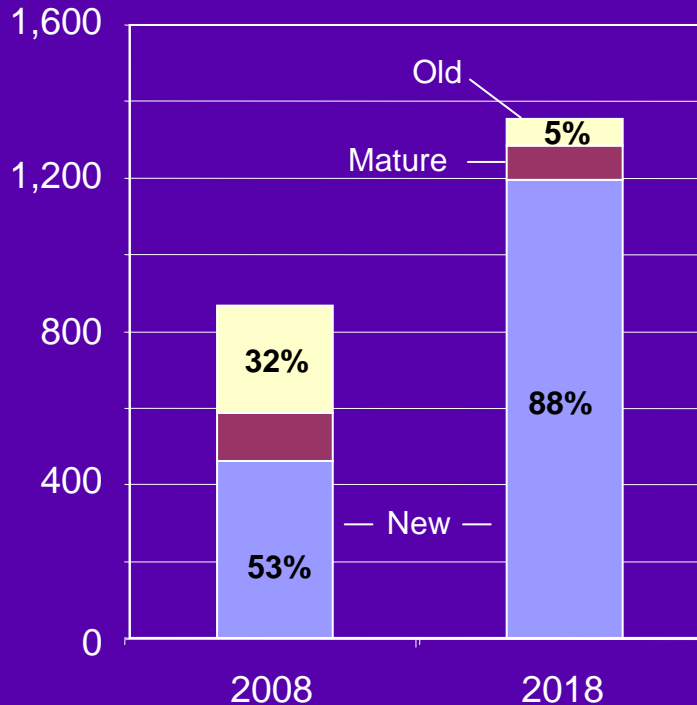
Middle East Is A Significant Importer Of Engine Overhaul With Only 5% Of Middle East Demand Being Done In Region

2008 Engine Overhaul Demand And Supply (US\$)
By Region



A Large Swing Towards Newer Technology Aircraft Will Have A Significant Impact On MRO Suppliers

2008-2018 Fleet Forecast
By Aircraft Technology¹



- Huge swing towards new technology aircraft (equal to 10% CAGR)
- Higher barriers to MRO market entry in such aircraft

Most Middle East MROs And Airlines Have Limited Participation In The Engine And Components Markets

2008 Middle East MRO Market – Degree of Participation By In-Region Suppliers (\$2.2B)

- **HIGH** – most (>90%) carry out this work in-house, so demand is satisfied in region



LINE 18%

MODIFICATIONS 17%



MEDIUM

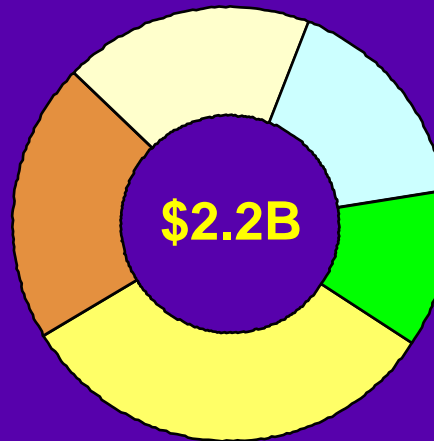
- Participation in e.g., interiors, painting

COMPONENT 21%



LOW

- Airlines typically cover up to 20% of the components on in-house types only: e.g., cabin products, seats, wheels and brakes



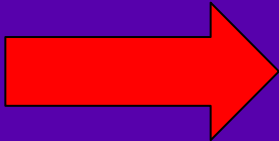
AIRFRAME HM 12%



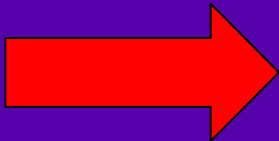
- **HIGH** – over 80% of regional demand supplied in region

- **LOW** – ~5% of regional demand supplied in-region

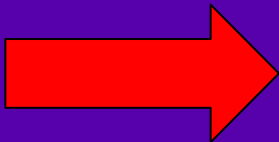
To Conclude, Some Interesting Questions For 2009...



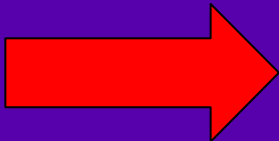
What will happen to DAE investments the aerospace / MRO sector in 2009?



When will we see ADAT and SR Technics join forces?

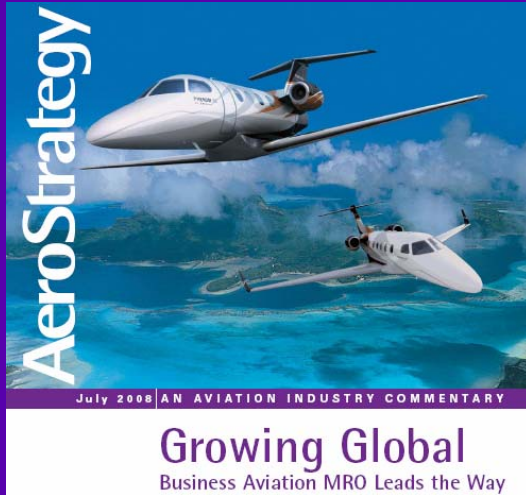


Will an engine OEM establish a facility in the region?



Will the Middle East grow as a source for airframe heavy maintenance for Europe?

Thanks For Your Attention!



- AeroStrategy is a leading management consulting firm providing market strategy and analysis for the aerospace industry, with offices in Ann Arbor U.S.A., and Amersham, U.K.

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