

# Future Plans on Policies, Regulations and Initiatives to promote aerospace investments in Thailand



Developed by

Public Sector & Government Practice  
Frost & Sullivan  
Asia Pacific

15 January, 2018

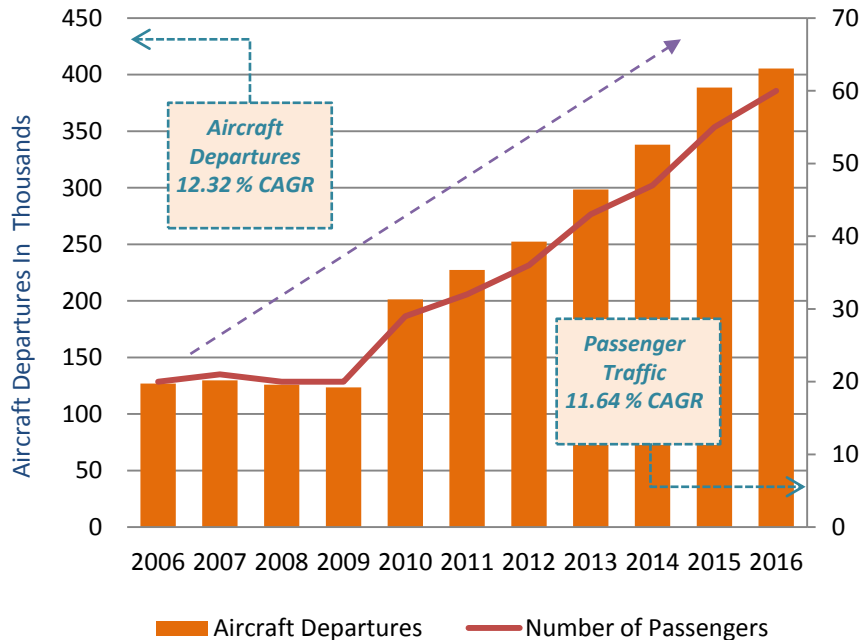


FROST & SULLIVAN

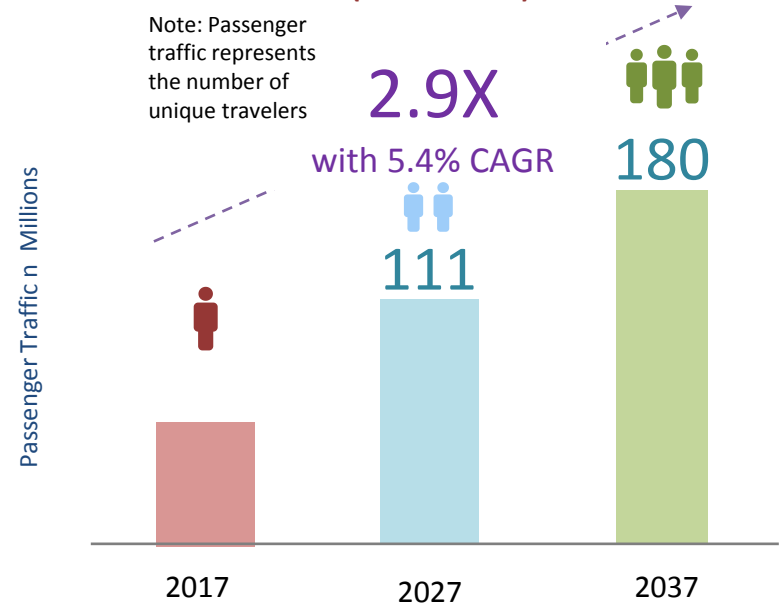
# Air Traffic in Thailand

- Thailand's air passenger traffic grew threefold in the past 10 years from 2006 to 2016. The growth, which was modest until 2010, took off in 2010 and has been going up at pace since then.

**Aircraft Departures & Passenger Traffic (2006 – 16)**



**Thailand Passenger Traffic in Mn (2017 – 2037)**



Source: World Bank, Frost & Sullivan Analysis

- The growth in aircraft movements of 12.32% is almost 4 times the global CAGR of 3.33% from 2006 to 2016 whereas Passenger Traffic has grown at 11.64% CAGR in the same period.

- Thailand passenger traffic is estimated to grow at 5.4% CAGR over the period of 2017 – 2037
- It is forecasted to grow to 2.9 times the passenger traffic in 20 years time

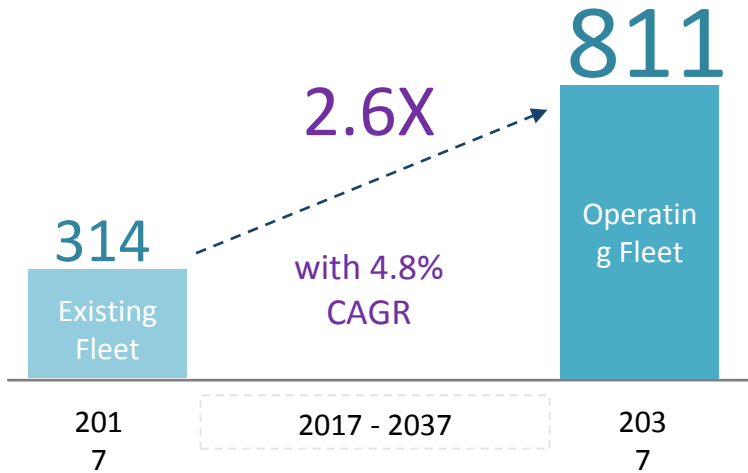
Source: Frost & Sullivan Analysis



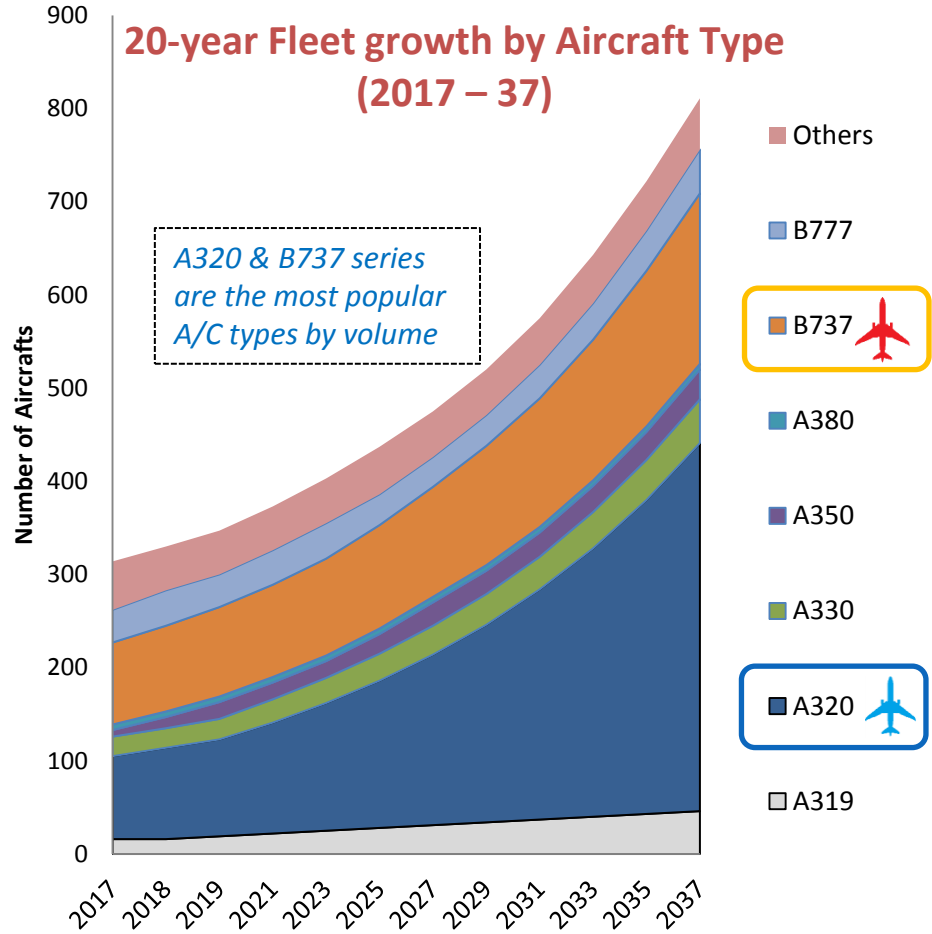
# Thailand Fleet Forecast

- Thailand currently has an operating fleet of 314 aircrafts and this is expected to grow at a CAGR of 4.86% over the next 20 years to reach 811 aircrafts in 2037
- The narrow-body segment consisting of A320 & B737 series, is expected to be the major growth driver

## Thailand Fleet Forecast (2017 – 37)



- The growth in Thailand fleet is majorly seen due to increase in narrow body aircrafts by volume.
- Wide body aircrafts continue to grow in terms of value.



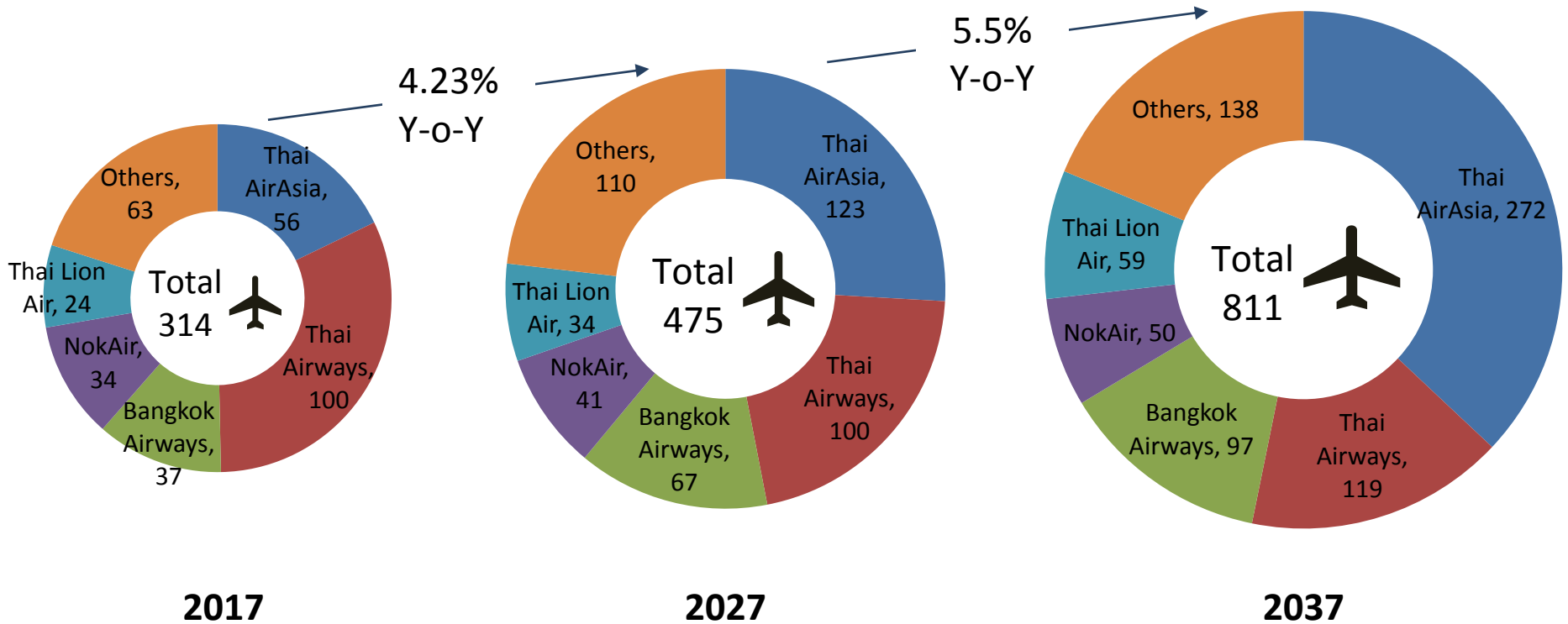
Source: Frost & Sullivan Analysis



# Thailand Fleet Forecast

- Thai AirAsia is expected to drive the bulk of the growth and it is expected to become the largest airline in terms of fleet size
- Thai Airways will continue to be the largest wide-body operator in the country
- Most of the aircraft are operated by Thai Airways, Thai AirAsia and Bangkok Airways

## 20-year Fleet growth by Airline



Source: Frost & Sullivan Analysis

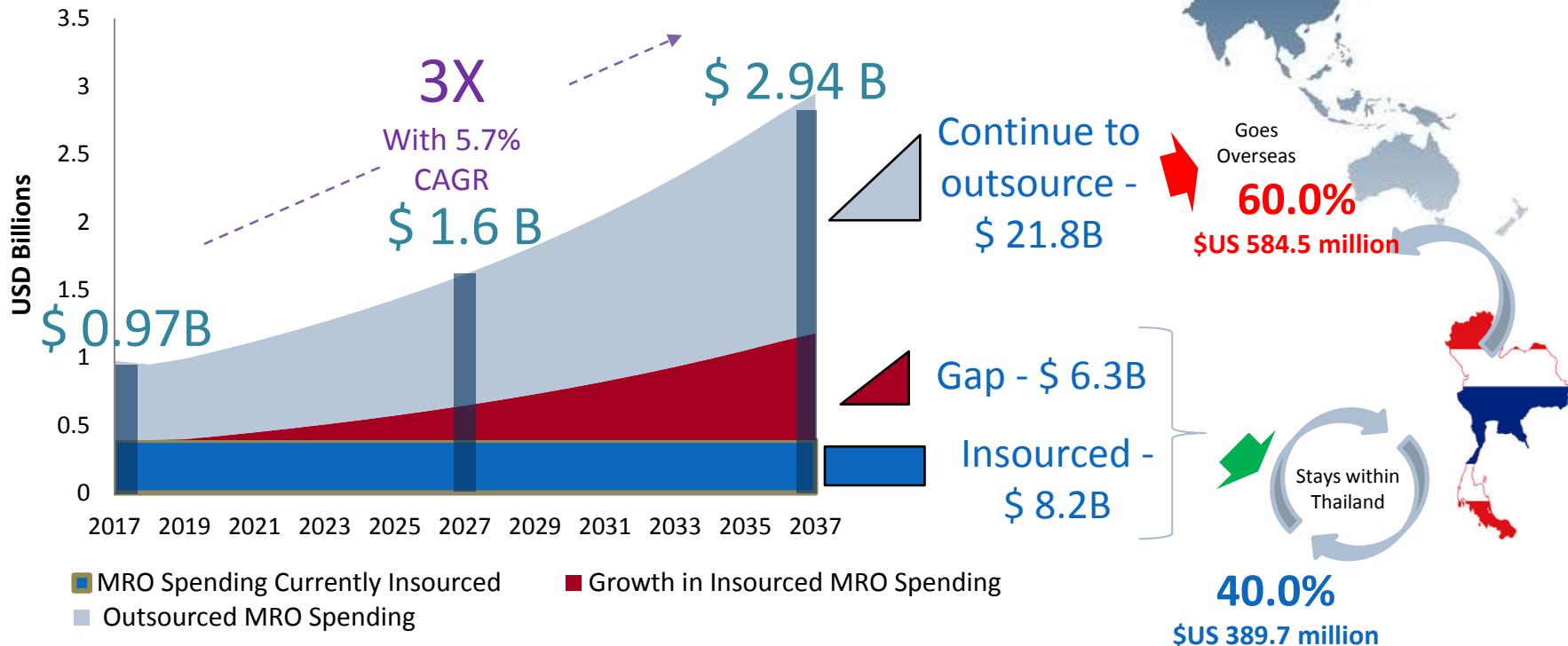


# Thailand MRO Spending

- Major chunk of engine MRO & component MRO business goes overseas to Malaysia, Singapore, Philippines etc.
- Close to 60% of Thailand's MRO spending goes overseas, while the remaining 40% stays within Thailand

## 2017 Scenario

Thailand MRO Spending Growth (2017-2037)



- In 2017, Thailand's total spend MRO spend is expected to be close to US\$974 million
- The MRO market in Thailand is forecasted to grow at a CAGR of 5.7% over the next 20 years

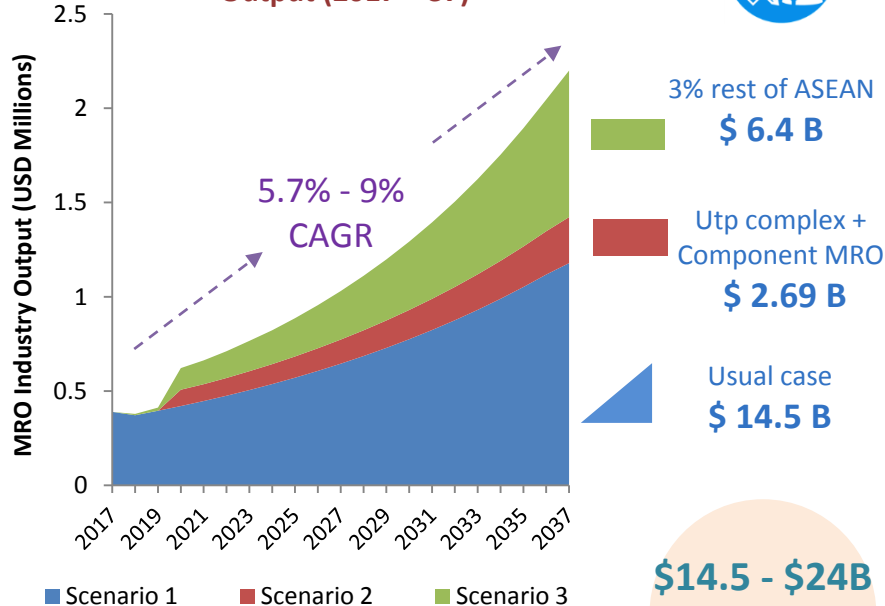
Source: Frost & Sullivan Analysis

Note: The forecast is based on the assumption that 60% of the MRO spending will continue to be outsourced in the future years



# Aerospace MRO and OEM Industry Output

## Thailand Aerospace MRO Industry Output (2017 – 37)



**\$14.5 - \$24B**  
(2017 – 2037)

**MRO**

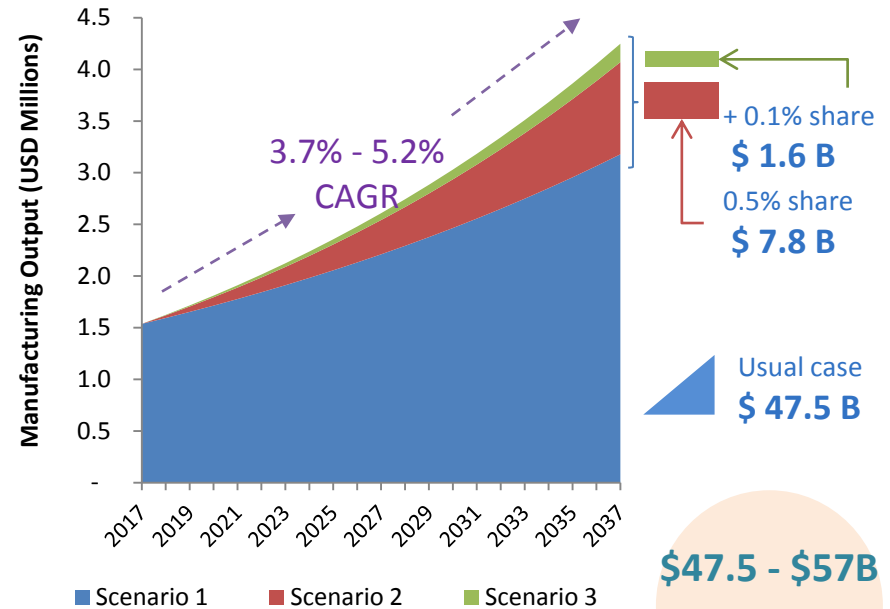
Business As Usual (with 40% of demand insourced)

Additional output from Utp MRO complex & component MRO

Additional output from capturing 3% of Rest of ASEAN market share



## Thailand Aerospace Manufacturing Industry Output (2017 – 37)



**\$47.5 - \$57B**  
(2017 – 2037)

**MRO**

Business As Usual

With additional 0.5% global share

Scenario 2 + additional 0.1% global share



- Major chunk of engine MRO & component MRO business goes overseas to Malaysia, Singapore, Philippines etc.
- Setting up of U-Tapao MRO complex and other component MRO center can tap up to 50% of the rest of Asia Pacific market for targeted component segments.

- Driven mostly due to Thailand's expertise in Tier 3 and Tier 4.
- With the growing trend of migration of manufacturing to low cost countries, Thailand can potentially benefit by capturing a greater share of the global market

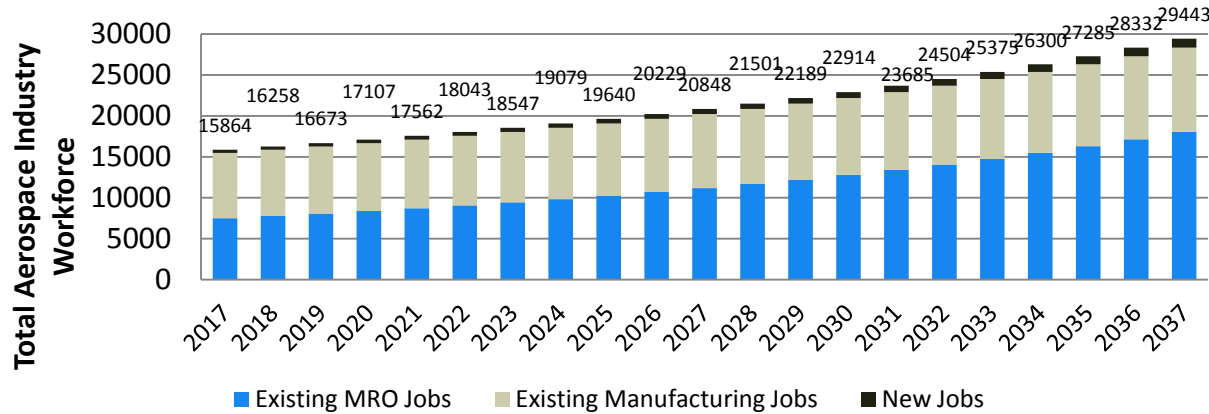
Source: Frost & Sullivan Analysis



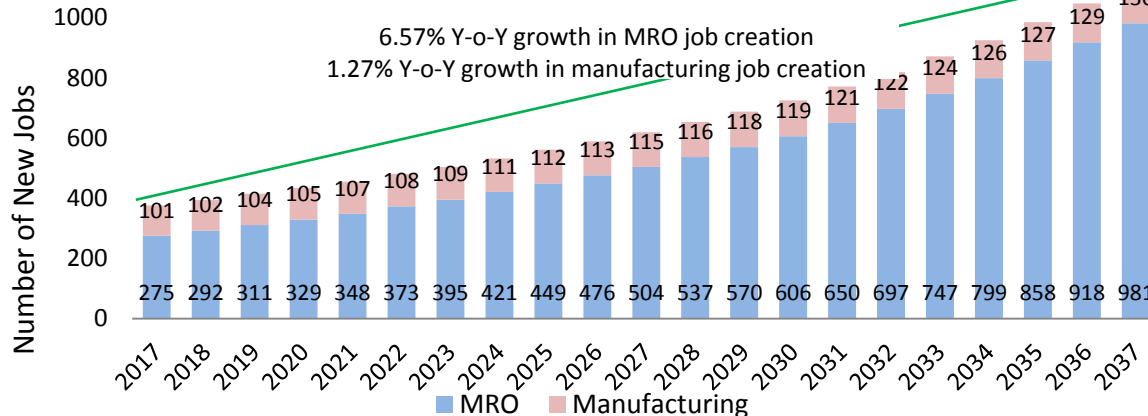
# Thailand Manpower Forecast – Scenario 1 Business-As-Usual

- In 2016, the aerospace industry employed about 15,488 people. About 376 new jobs are expected to be created in 2017. At the end of 20 years, the industry is expected to employ close to 29,443 people.

**Estimated Workforce in Aerospace Industry in Thailand  
(Business-As-Usual Scenario)**



**New Jobs Created in the Aerospace Industry (Business-As-Usual Scenario)**



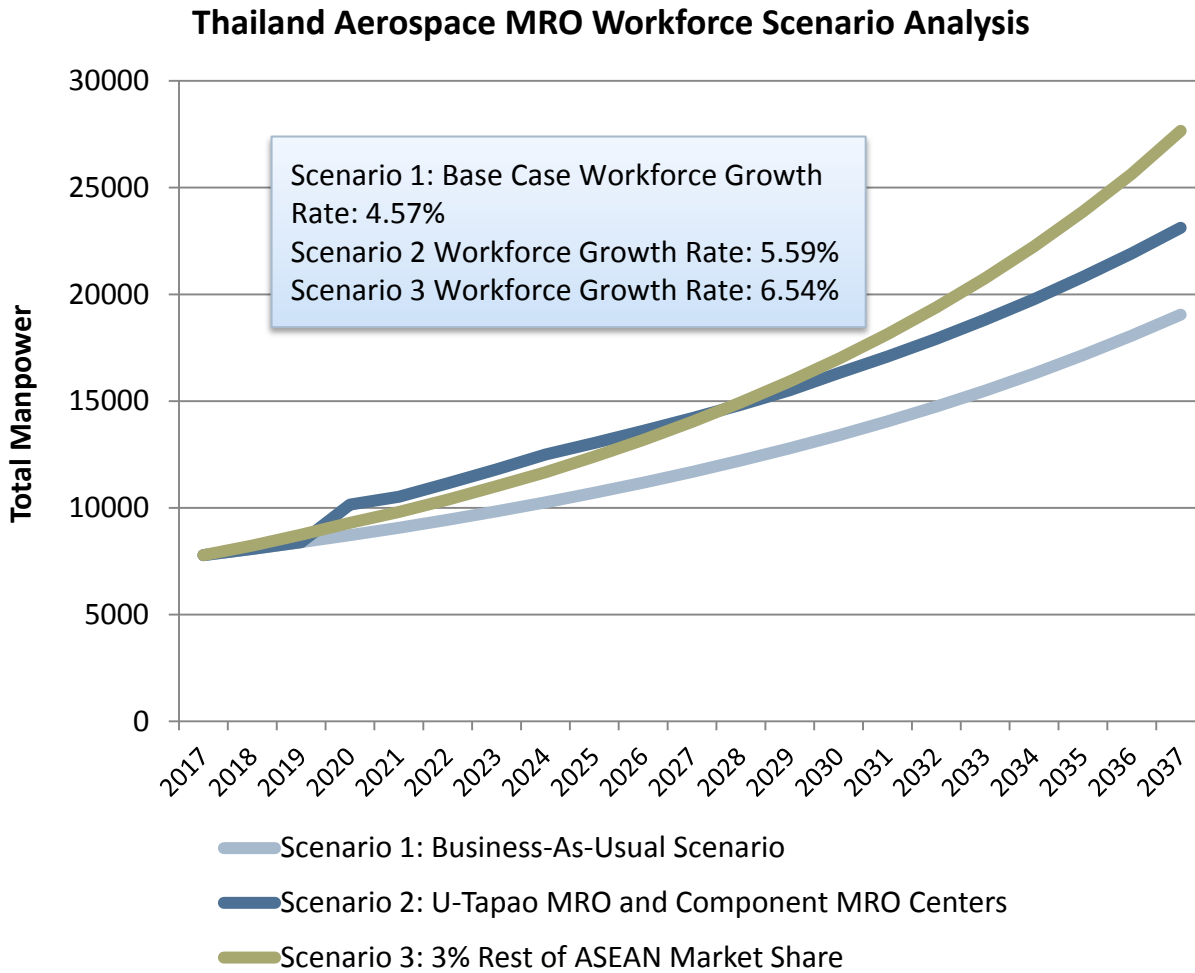
## Key Insights

- At a cumulative level, the aerospace industry can be expected to generate close to 14,000 new jobs in the next 20 years.
- The MRO sector is expected to lead the job creation in the next 20 years. A total of 11,536 new jobs are expected to be created, which includes 7,690 technician and engineer jobs, and 3,846 jobs in the support functions
- About 2,419 new jobs are expected to be added over the next 20 years by the manufacturing segment.



# Thailand MRO Manpower Forecast – Scenario Analysis

- Two possible scenarios are developed for the MRO industry and the impact on manpower for each is analysed.



## Scenario 2

- This includes impact of U-Tapao MRO center and component repair centers of the top 5 recommended components
- In total, 4,066 new jobs can be created, which include 2,711 technician and engineer jobs and 1,355 jobs in the support functions over 20 year period

## Scenario 3

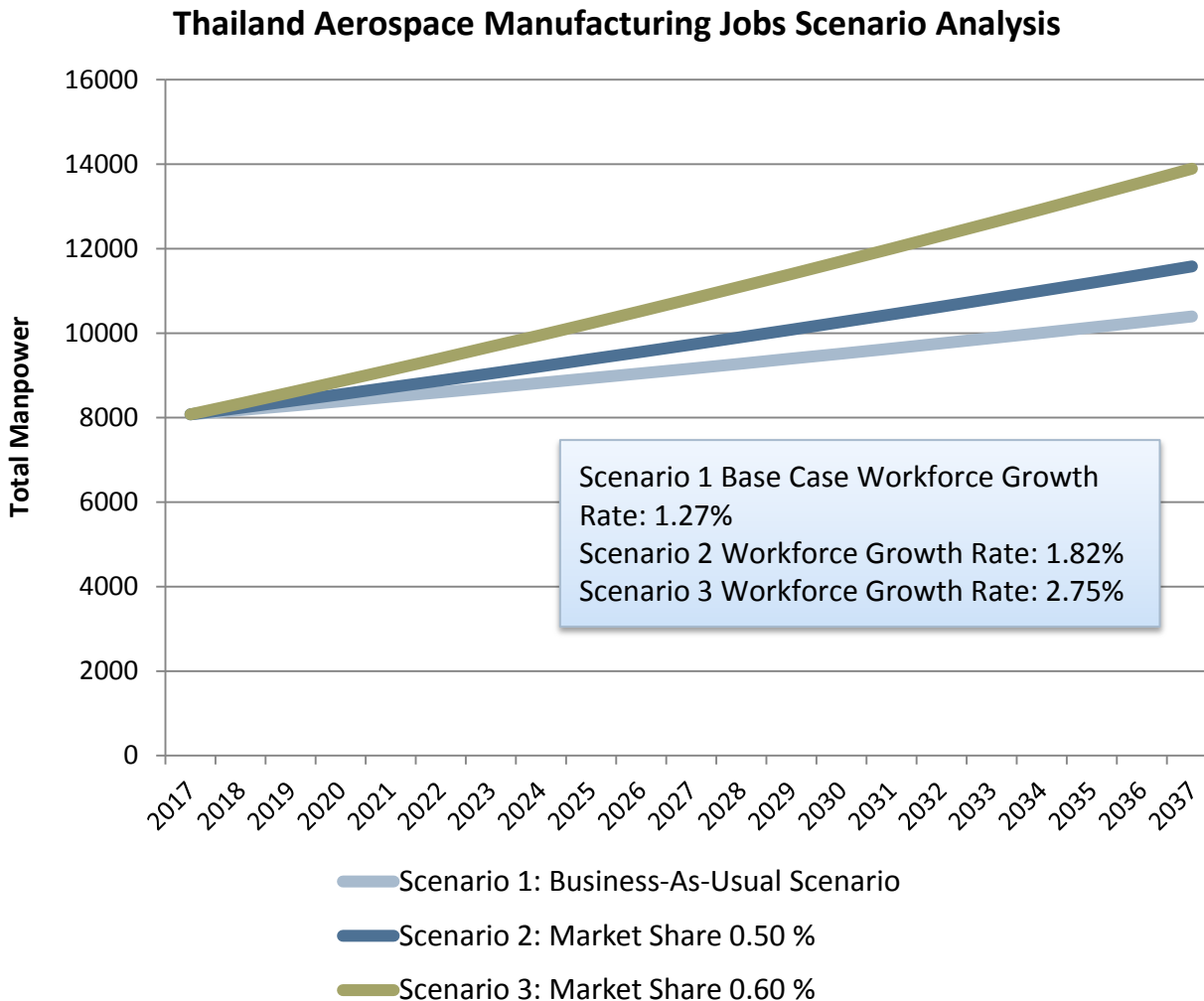
- This includes focusing on engine and airframe MRO to capture 3% market from the rest of ASEAN
- This can lead to the creation of additional 8,610 additional jobs, including 5,740 technician and engineer jobs and 2,870 jobs in the support functions over the next 20 years





# Thailand OEM Manpower Forecast – Scenario Analysis

- Two possible scenarios are developed for the manufacturing sector and the impact on manpower for each is analysed.



## Scenario 2

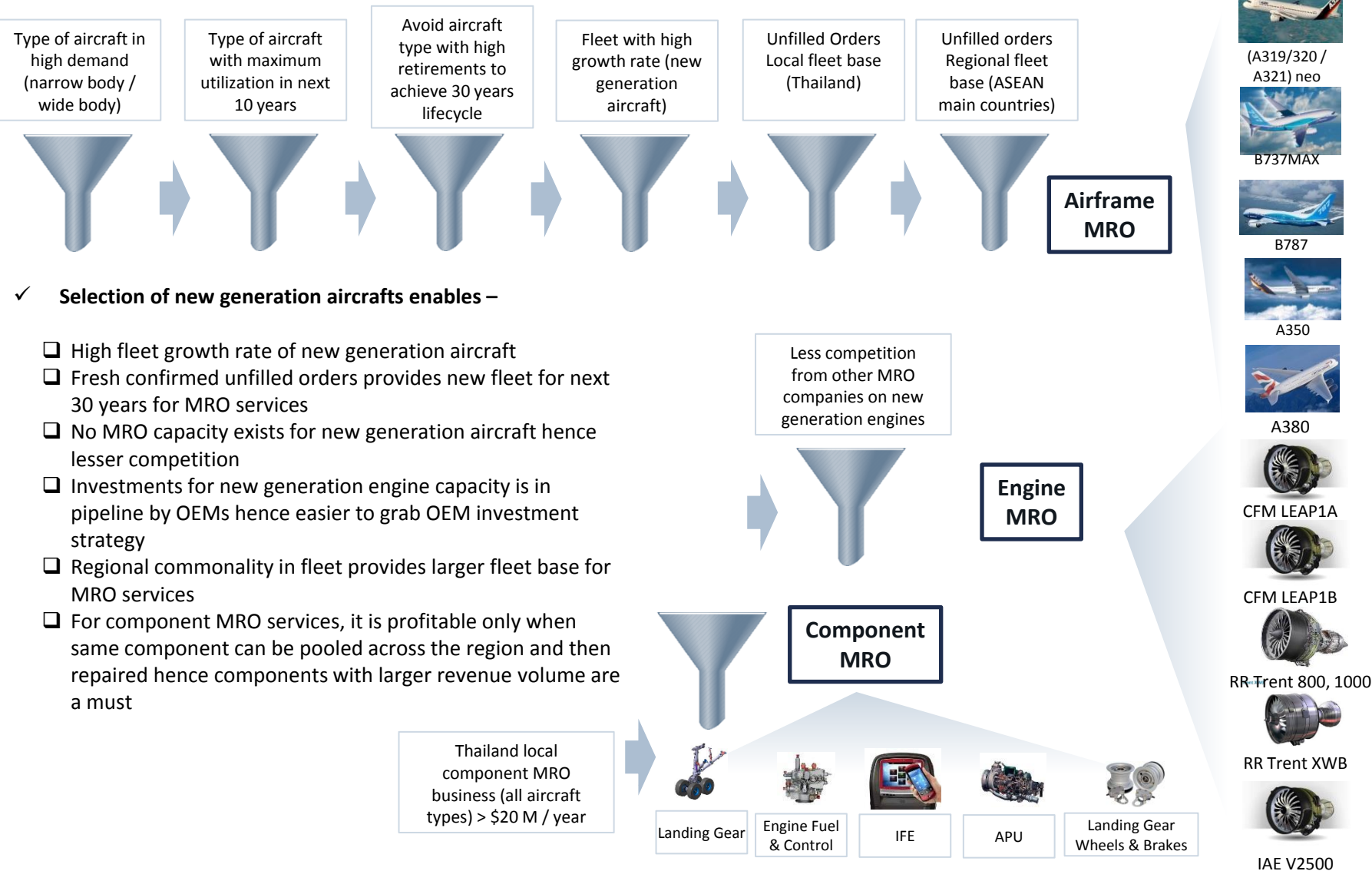
- The scenario 2 assumes that Thailand can increase their global market share to 0.5% by 2037
- If this can be achieved, an additional 1,184 new jobs can be created over and above the base case scenario.

## Scenario 3

- This scenario assumes that Thailand can increase their global market share to 0.6% by 2037
- This will lead to the creation of an additional 3,500 new jobs over and above the base case scenario.



# Targeted Aerospace MRO segments

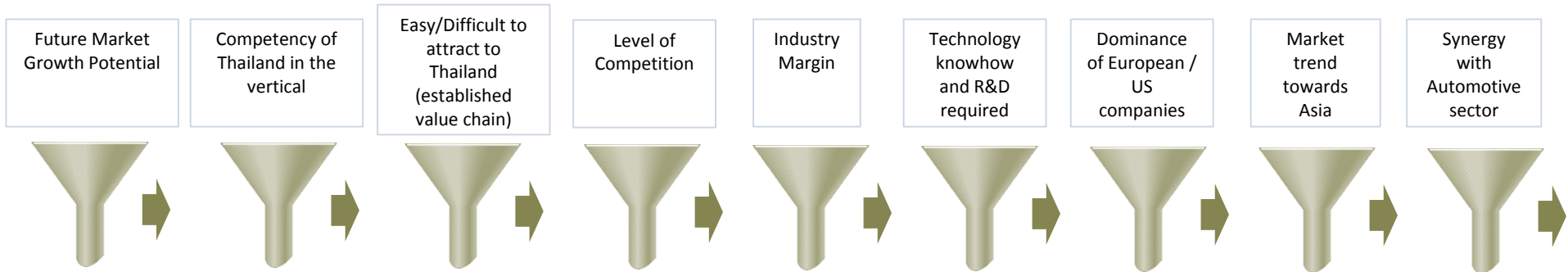


✓ **Selection of new generation aircrafts enables –**

- High fleet growth rate of new generation aircraft
- Fresh confirmed unfilled orders provides new fleet for next 30 years for MRO services
- No MRO capacity exists for new generation aircraft hence lesser competition
- Investments for new generation engine capacity is in pipeline by OEMs hence easier to grab OEM investment strategy
- Regional commonality in fleet provides larger fleet base for MRO services
- For component MRO services, it is profitable only when same component can be pooled across the region and then repaired hence components with larger revenue volume are a must

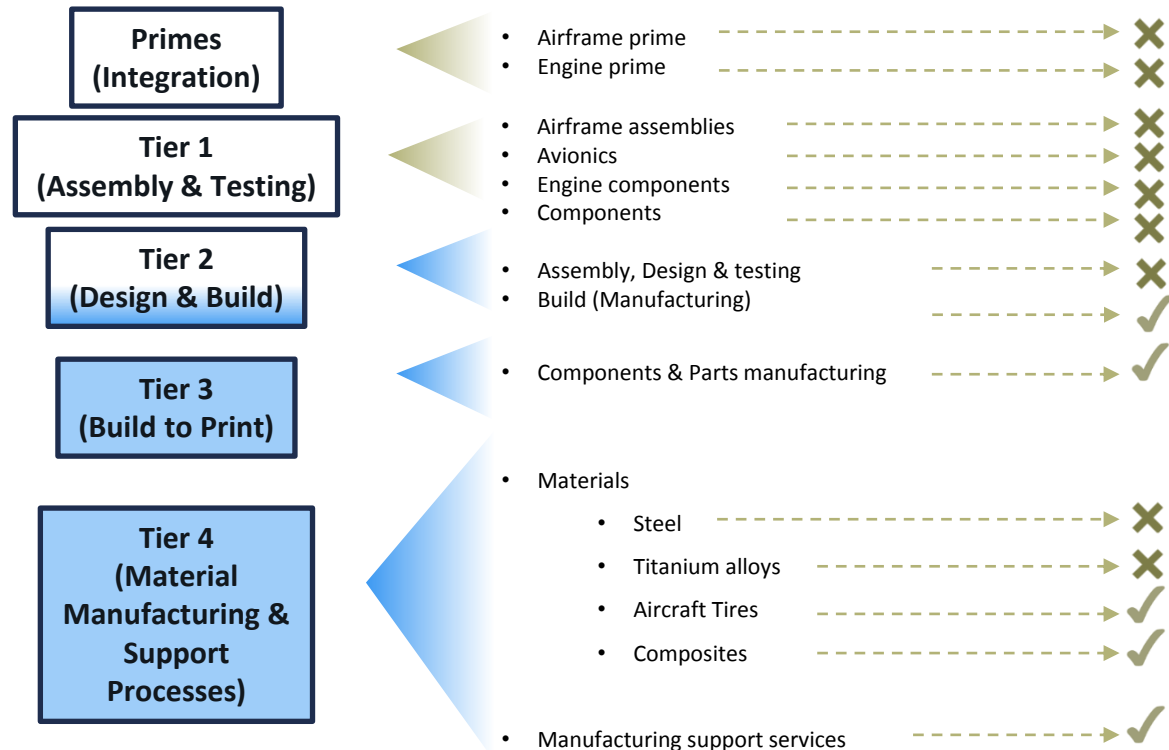


# Targeted Aerospace Manufacturing segments

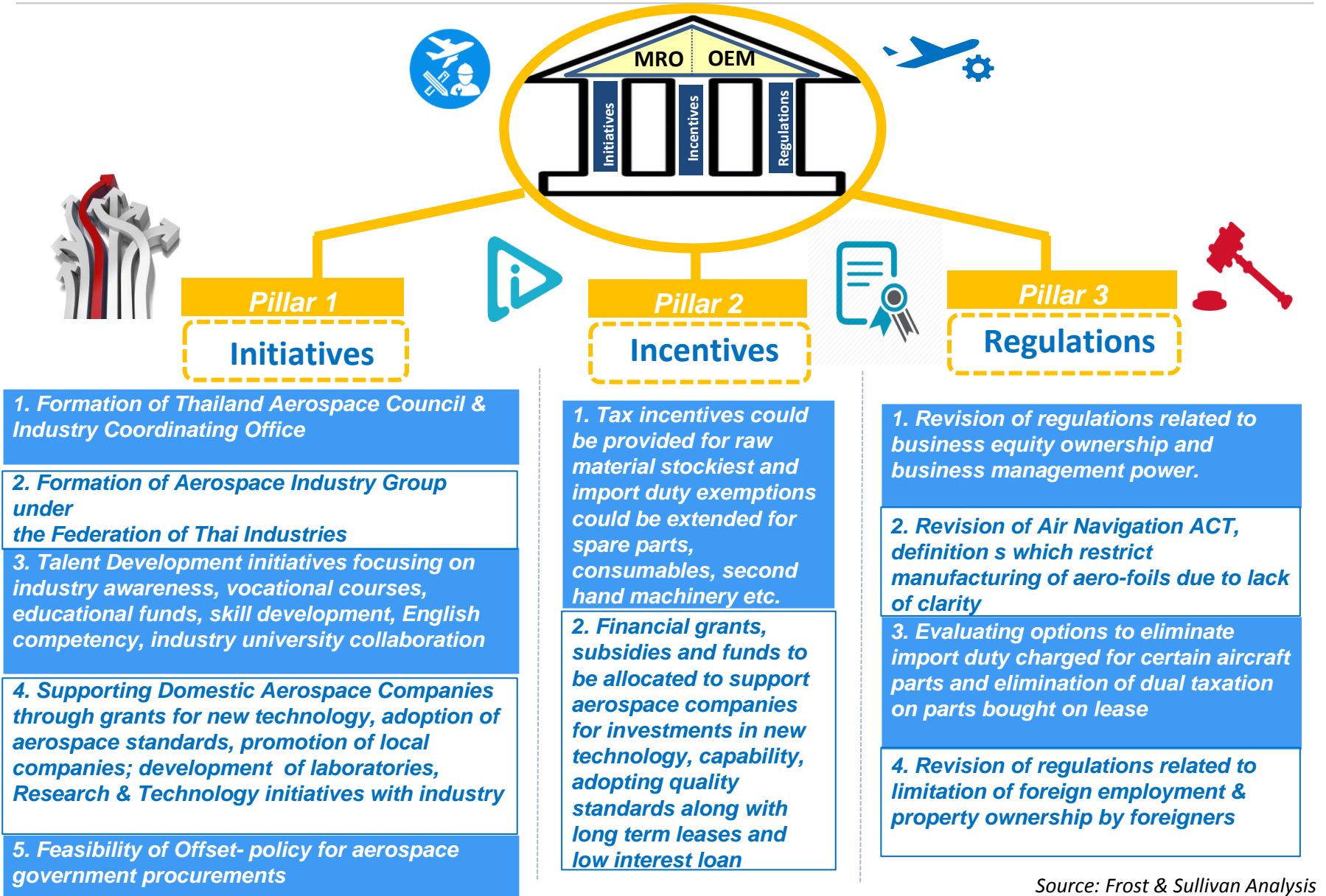


## ✓ Selection of manufacturing segments –

- ❑ Setting up aircraft prime and Tier 1 manufacturers is not feasible as it requires large scale assembly, testing, integration and project management capabilities with strong govt. offset program or support
- ❑ Tier 2 manufacturing involves sub assembly, testing and design & build activities with efficient logistics so as to bring together no. of sub components and perform testing. Only the manufacturing portion can be brought to Thailand
- ❑ Tier 3 manufacturing is ideal for Thailand as manufacturers are looking to cut costs and move to low cost countries purely on a “build to print” basis
- ❑ Tier 4 is material supply and engineering services support which also have synergy with Thailand’s automotive industry such as composites etc.



# Future Plans of Thai Aerospace MRO & OEM Industry



Source: Frost & Sullivan Analysis



# New Policy Initiatives

## Aerospace Industry Group

- No Aerospace Association in Thailand
- Aerospace Industry Association is a collective representation of all the aerospace industry players in Thailand to collaborate and voice out the issues hindering the aerospace industry.
- To support policy making & local aerospace industry development through trainings, guidance and supplier development.



**Aerospace Industry Group** to be established under the Federation of Thai Industries

### Responsible Agencies:

- ✓ Civil Aviation Authority of Thailand
- ✓ Federation of Thai Industries

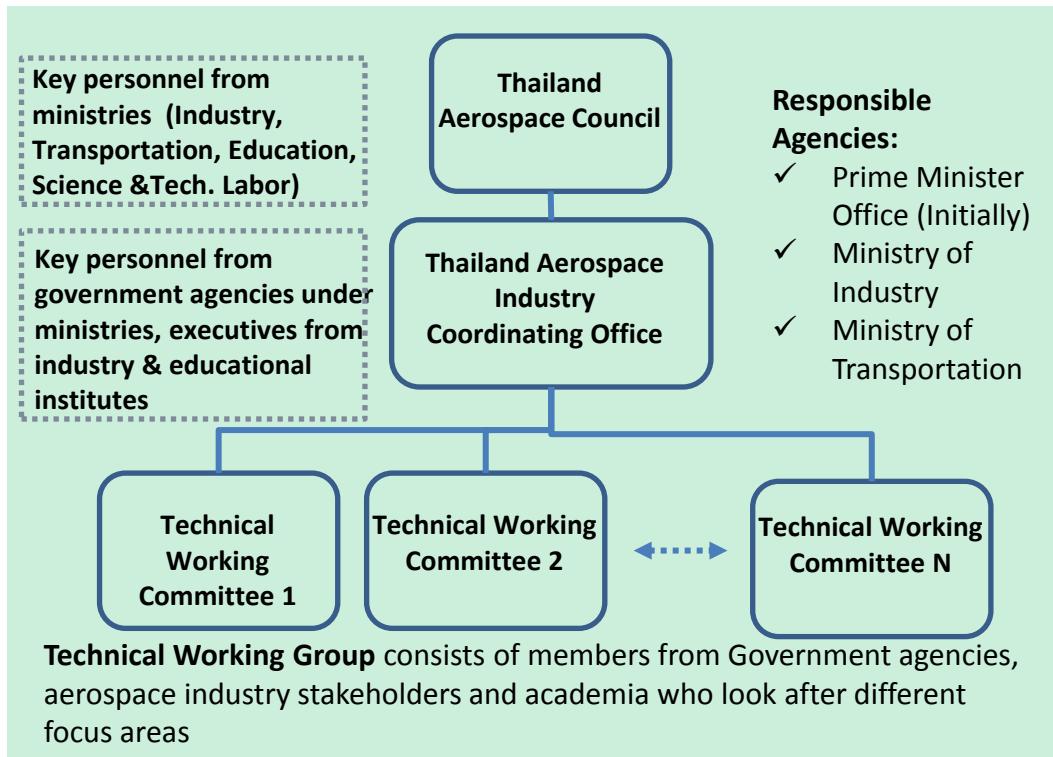
## National Aerospace Council & Industry Coordinating Office

Thailand doesn't have national level aerospace development agency

- To provide guidance & direction for aerospace industry growth
- To co-ordinate with the relevant government agencies for the implementation of strategy.



### Structure



# New Policy Initiatives

## Human Resource & Talent Development Initiatives

### Initiatives

### Responsible Agencies



#### To attract youth to aerospace industry

- Create awareness about industry & career
- Engage students through site visits & job fairs
- Scholarships & Students loans
- Specific aerospace courses to train students of 17-25 age group

Ministry of  
Education

Civil Aviation  
Authority of  
Thailand

#### Introduce more educational courses for aerospace

- Integrate English to subjects taught in schools
- Introduce Aviation English courses
- Vocational courses focusing on soft skills (English, Mid. Mgmt.) & hard skills (Welding, CNC, NDT etc.)
- Conduct Guest lectures from leading aviation schools in the region
- Promote further studies of students in aerospace

Ministry of  
Education

Ministry of  
Industry

Institutes like  
CATC

Civil Aviation  
Authority of  
Thailand

Office of Vocational  
Education &  
Education Council

Thai German  
Institute



#### Facilitate establishment of more Institutes focusing on aerospace education

- Reserve lands for training centers in industrial & aerospace zone
- Ensure there are more training schools & vocational institutes
- Provide funds/ land / better lease terms for training centers

Ministry of  
Education

Ministry of  
Industry

Ministry of  
Finance

Civil Aviation Authority of Thailand

#### Develop Skills Framework and encourage University & Industry collaboration

- To develop research, curriculum, training, practical site visits, internships
- Introduce Industry executives and experts. in University board
- Develop skills framework to provide information database on youth, jobs, skill gaps, trainings in industry
- Ensure transfer of technology and know-how from skilled foreigners to locals with liberal foreign worker policy

Ministry of  
Education

Ministry of  
Industry

National Science &  
Technology  
Development  
Agency



#### Allocate Aviation funds

- Scholarships, PhDs, Trainings, Rebate for exams, Initiatives to attract youth
- Subsidies for training; salary subsidy for recruiting fresh graduates
- Funds to purchase equipment for courses

Ministry of  
Education

Ministry of  
Industry

Ministry of  
Finance

Civil Aviation Authority of Thailand



# New Policy Initiatives

## Support Domestic Companies

- Lack of strong government initiatives to support domestic aerospace companies
- Lack of funds & grants
- Lack of strong guidance & direction for SMEs



### Develop financial grant programme to support domestic aerospace companies:

- ✓ To adopt aerospace quality standards
- ✓ To acquire new technology / equipment / business expansion
- ✓ To train employees
- ✓ Promote local companies on international platforms / trade fairs
- ✓ Support matchmaking with OEMs
- ✓ Low interest long term loans

### Responsible agencies:

- ✓ Office of SMEs
- ✓ BOI
- ✓ CAAT
- ✓ Ministry of Industry / Ministry of Transportation / Ministry of Finance

## Aerospace Laboratories & Certification Programmes

- There is no testing laboratory for aerospace products developed in Thailand
- Implementation of aerospace standards and certifications such as AS9100, NADCAP, EASA, FAA, CAAT are expensive and need wider adoption



### Implement Aerospace Standards & Certification programs

- ✓ Develop appropriate aerospace standards adoption programme
- ✓ Offer funding support to the aerospace companies to adopt the standards

### Responsible agencies:

- ✓ Civil Aviation Authority of Thailand
- ✓ Office of Industrial standards - MOI

### Development of Laboratories

- ✓ Government could set-up a testing laboratory for supporting aerospace industry players in Thailand
- ✓ Allocate funds and provide grants to companies willing to establish testing laboratories for aerospace manufacturing and MRO specific areas
- ✓ Initial focus areas: testing of aero-structures, environmental testing, non-destructive testing and metal behavior.
- ✓ Collaborate with OEMs



# New Policy Initiatives

## Research & Technology Development

- Lack of collaboration with industry players and universities to undertake aerospace research
- No specific Innovation Center to undertake aerospace research and development



### Short term goal

- ✓ Provide scholarships to Thai for PhD studies in aerospace
- ✓ Use the existing players in Thailand such as Senior Aerospace, Rolls Royce to develop aerospace R&D plan.

### Responsible agencies:

- ✓ Ministry of Science & Technology
- ✓ Ministry of Industry
- ✓ National Science & Technology Development Agency

### Long term goal

- ✓ Establish Aerospace Innovation Center to undertake research & technology as per the local industry needs
- ✓ Encourage collaboration between aerospace industry players and universities to develop research programs
- ✓ Partner with established OEMs such as Airbus, Rolls Royce which have already shown interest in Thailand
- ✓ Support development of aerospace research and technology through government funding and partnership

## Offset Policy

To evaluate Offset policy guidelines for aerospace and defence procurements by government in Thailand



### Develop Offset policy Guidelines:

- ✓ Establish strategic partnership with international aerospace companies.
- ✓ Maximising the usage of local content
- ✓ Encouraging technology and know-how development
- ✓ Supporting collaboration of Research and Technology development
- ✓ Facilitating investments and human resource development collaboration

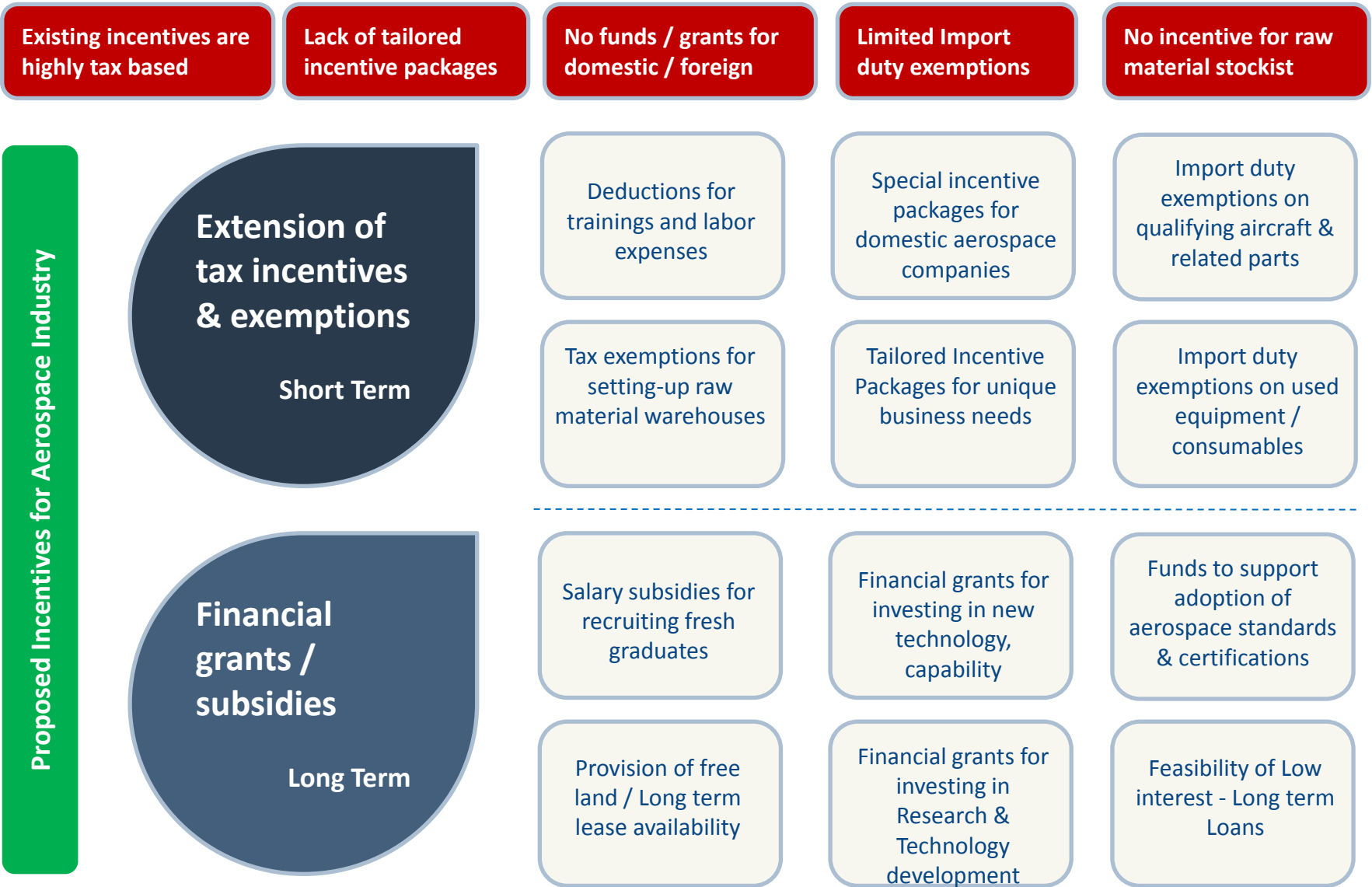
### Responsible agencies:

- ✓ Ministry of Industry
- ✓ Ministry of Transportation
- ✓ Ministry of Finance
- ✓ Ministry of Defence





# Attractive Incentives



Source: Frost & Sullivan Analysis



# Simplified Regulations

## Simplification of foreign employment restrictions

- ✓ Exemptions on Thai to Foreigner ratio of 4:1 on certain sectors (E.g. Aviation Training, Manufacturing)
- ✓ Encourage foreign talent

## Evaluation of Property ownership by foreigners (Individuals & Businesses)

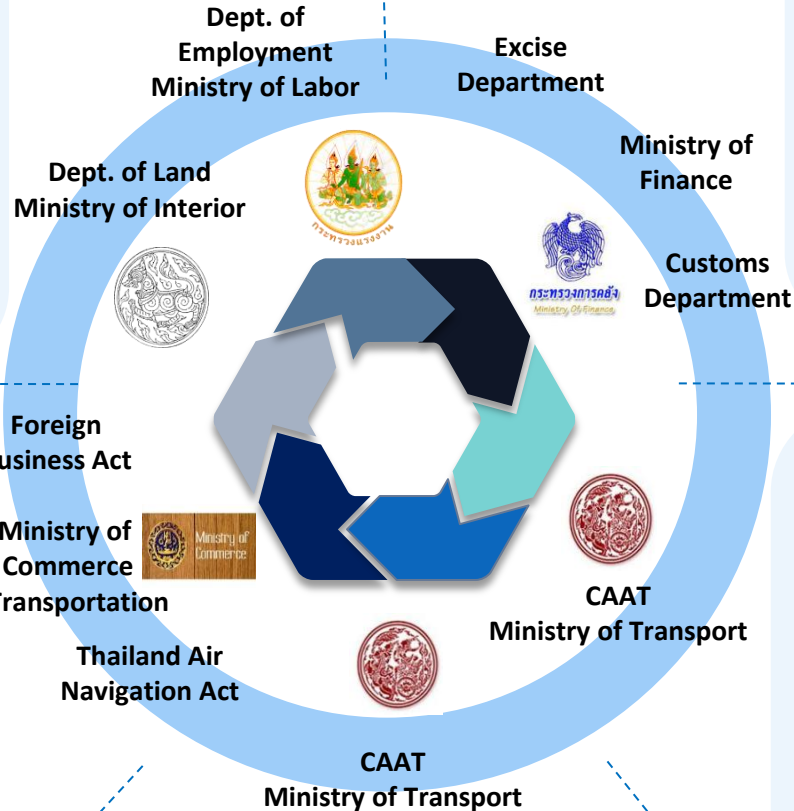
### More favorable lease terms

## Revision of Foreign Business Act, B.E. 2542

- ✓ 100% foreign ownership
- ✓ No restriction on management power

## Revision of Air Navigation Act B.E. 2497

- ✓ No restriction on production certificate based on foreign equity ownership
- ✓ No restriction based on business management power



## Eliminate Import duty / GST

- ✓ on certain qualifying aircraft related spares, parts, engine etc.

## Eliminate Dual taxation

- ✓ Eliminate dual tax on parts imported on lease

## Recognition of Certifications from Foreign Aviation Authorities

- ✓ CAAT to develop Bilateral Aviation Safety Agreement with likes of EASA & FAA
- ✓ Simplification of process to issue certificates for Foreign repair stations

## Conversion of Foreign Aircraft License

- ✓ Allow foreigners to convert Licenses to Thai

**Restriction to manufacture aerofoils** due to lack of clarity in the definition of major aircraft appliance stated in the air navigation act.

Source: Frost & Sullivan Analysis



Frost & Sullivan, the Growth Partnership Company, works in collaboration with clients to leverage visionary innovation that addresses the global challenges and related growth opportunities that will make or break today's market participants. For more than 50 years, we have been developing growth strategies for the Global 1000, emerging businesses, the public sector and the investment community. Is your organization prepared for the next profound wave of industry convergence, disruptive technologies, increasing competitive intensity, Mega Trends, breakthrough best practices, changing customer dynamics and emerging economies? [Contact Us: Start the Discussion](#)


## Amartya De

### Associate Director

Australia, New Zealand and Asia

Aerospace & Defense

Public Sector & Government Practice

 P: +61 (0)2 8247 8917 , M: +61 (0)4 2605 2795

 [amartya.de@frost.com](mailto:amartya.de@frost.com)