MAVCOM'S LONG-TERM RECOMMENDATIONS

FOR THE CIVIL AVIATION INDUSTRY IN MALAYSIA

2021 – 2030

MAVCOM

Malaysian Aviation Commission

Suruhanjaya Penerbangan Malaysia

EXECUTIVE SUMMARY

Introduction

On 26 March 2016, the Commissioners of the Malaysian Aviation Commission (MAVCOM, or the Commission), decided that the Commission, as the economic regulator for the Malaysian civil aviation industry, would propose long-term recommendations for the Malaysian Civil Aviation Sector (Proposed Economic Master Plan, termed Proposed EMP, Master Plan, or Plan) to the Ministry of Transport, Malaysia (MOT), to provide long-term strategic direction for the sector.

This is in line with section 17 of the Malaysian Aviation Commission Act 2015 [Act 771], which states that one of the functions of the Executive Chairman of the Commission (and by extension, the Commission) is to "advise the Minister (of Transport) on policies and plans on all matters relating to civil aviation and to develop strategies in line with such policies and plans".

MAVCOM had completed the Proposed EMP and presented it to its Commissioners on 6 December 2018. The Commissioners had also decided that MAVCOM would publish the Proposed EMP following a presentation of the Plan to the Minister of Transport. However, to-date, the Minister has yet to agree to be presented with the Proposed EMP. It was therefore decided that MAVCOM would publish the Proposed EMP, presented as a set of proposals to the Ministry of Transport.

The Proposed EMP therefore constitutes a proposal from the Commission to the MOT.

As an economic master plan, this proposal covers economic matters related to the sector but does not directly address technical, safety, and environmental issues. However, it highlights interlinkages between these areas and the Proposed EMP's recommendations, if any.

The Proposed EMP will cover the following sub-sectors, which are aligned with the areas of responsibility for MAVCOM defined in Act 771:

- Passenger and cargo air transport, both scheduled or unscheduled (charter)
- Aerodrome (airport) operations
- Ground-handling services, including:
    - Passenger handling
    - Refuelling
    - Catering
    - Line maintenance, comprising:
        - Routine services performed before flights
        - Non-routine services requested by airport users
        - Provision and administration of spare parts

As such, the Proposed EMP does not encompass sub-sectors considered 'upstream' such as aircraft designs, engineering and manufacturing, leasing, and maintenance, repair and overhaul (MRO) services. This is illustrated in Figure 1.

Figure 1: Value Chain of the Aviation Industry and Sectoral Coverage of the Proposed EMP

Source: MAVCOM

While the Commission notes that the air navigation services (ANS) sub-sector is an integral part of the civil aviation sector, it is under the purview of the Civil Aviation Authority of Malaysia (CAAM), and therefore outside the scope of this Proposed EMP. The Proposed EMP proposes that ANSP-related issues are subsumed in a Technical and Safety Master Plan for the Malaysian Civil Aviation Sector.

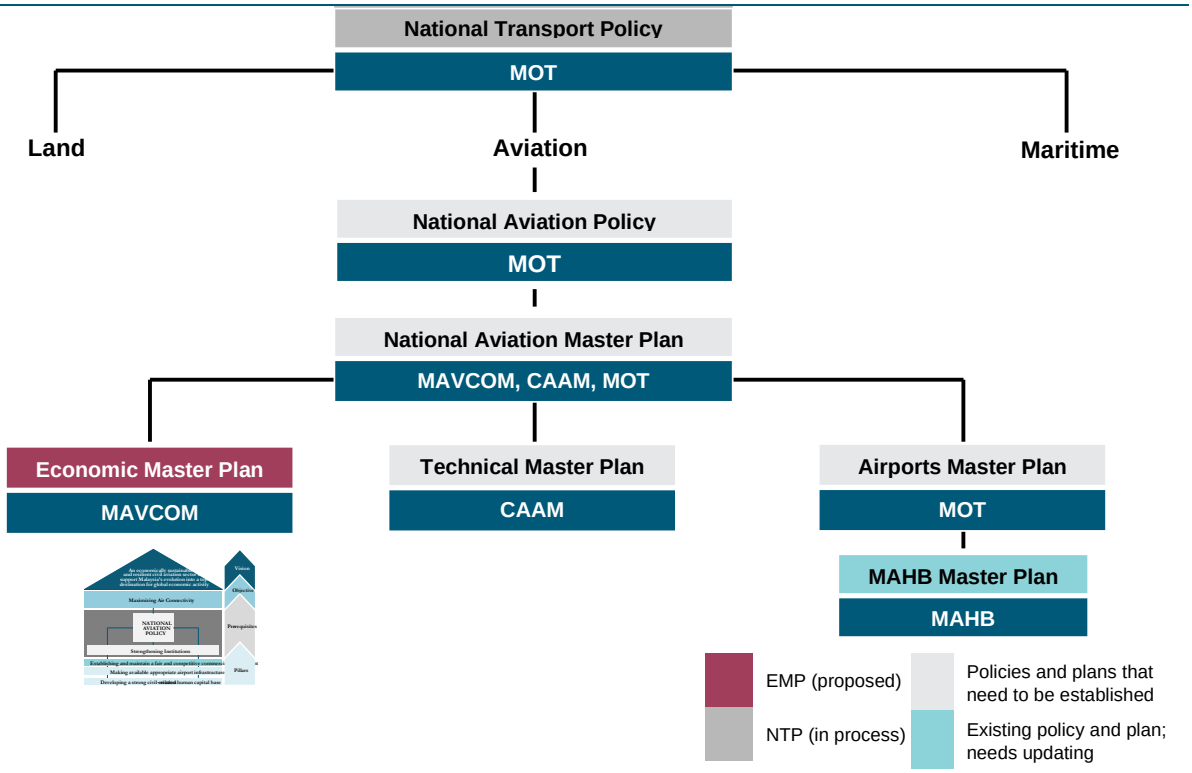
The Proposed EMP will also need to be aligned with existing policies, plans, and international commitments related to the economic development of the Malaysian civil aviation sector. These include, but are not limited to, the following:

- The National Transport Policy (NTP)[1]
- The 11th Malaysia Plan (11MP)
- Air Services Agreements (ASAs) and other international commitments

[1] The NTP has since been completed and launched on 17 October 2019. The Policy document is available at https://www.pmo.gov.my/2019/10/national-transport-policy-2019-2030/

The Proposed EMP should be part of a set of policies and plans to guide the development of the Malaysian civil aviation sector, as illustrated in Figure 2.

Figure 2: Policies and Plans That Should Guide the Development of the Malaysian Civil Aviation Sector



Source: MAVCOM[2]

It is envisaged that the Proposed EMP will be implemented in two phases:

- **Phase 1 (2019 – 2020): Foundation-setting**
  The implementation of the Proposed EMP will require several enabling measures to be undertaken. These include:
  - The establishment of required policies as well as attendant guidance documents. These include:
    - National Aviation Policy[3]
    - National Airports Strategic Plan
  - Approval and disbursement of funding
- **Phase 2 (2021 – 2030): Implementation**
  To coincide with the implementation period of the NTP, and the 12th and 13th Malaysia Plans, the implementation of the Proposed EMP will be completed over three periods:
  - Short : completed by 2022
  - Medium : completed by 2025
  - Long : completed by 2030

[2] The Technical Master Plan is currently under development as part of the National Airports Strategic Plan.
[3] Currently under development as the National Aviation Strategy.

The development of the Proposed EMP was primarily based on internal research and analyses related to the economic development of the Malaysian civil aviation sector. The areas researched included:

- Analysis of Malaysia's air connectivity, for passenger and cargo
- Review of Malaysia's airports industry structure
- Assessment of ownership issues relating to Malaysia's civil aviation sector
- Malaysia's Air Services Agreements (ASAs)

Details of the methodology and key findings of the above are included in background papers, some of which had been published by MAVCOM. These papers are:

- **Technical Paper: Aviation Sector Multiplier (August 2017)**
  MAVCOM's estimate of the economic contribution and output multiplier for the Malaysian aviation sector and issues surrounding the use of multiplier estimations
- **Technical Paper: Defining and Measuring Air Connectivity (May 2018)**
  MAVCOM's calculations of the Air Connectivity Index (ACI) and the Hub Connectivity Index, as well as, factors influencing air connectivity
- **Technical Paper: Airfares for Domestic Flights During Peak Seasons (August 2018)**
  Price multipliers for airfares due to peak seasons and the effects of price regulation and deregulation
- **Technical Paper: Air Service Agreements – Air Traffic Rights and Airline Nationality Requirement (November 2018)**
  The different approaches adopted in ASAs and the need for Malaysia to ensure policies are up to date with domestic economic objectives and international and regional developments
- **Position Paper: Sequencing Liberalisation for the Malaysian Aviation Services Sector (July 2019)**
  Malaysia's historical experience of liberalisation experienced by the aviation sector and recommendations to secure its benefits, including by promoting good governance
- **Position Paper: Malaysia's Airports Industry Structure (December 2019)**
  The industry structure of Malaysia's airports industry, issues and challenges arising from this structure and recommendations to improve the industry's competitiveness

The baseline findings and recommendations were then presented and discussed for consultation in four workshops with external stakeholders:

- Introductory Workshop : 28 November 2017
- Inception Workshop : 15 March 2018
- Interim Workshop : 28 June 2018
- Final Workshop : 12 – 13 November 2018

Please refer to Appendix 1 and Appendix 2 for the list of participants and meeting notes for the workshops, respectively.

Dr Harry Bush, board member for NATS Holdings Ltd. and former Group Director for Economic Regulation at the United Kingdom Civil Aviation Authority, and Dr Volodymyr Bilotkach, Associate Professor at the Singapore Institute of Technology, were engaged by the Commission as external peer reviewers for the Proposed EMP. The Commission gratefully acknowledges their contributions.

All information in the Proposed EMP were the latest available as at December 2018, when the Plan was tabled to MAVCOM's Commissioners.

Master Plan Framework

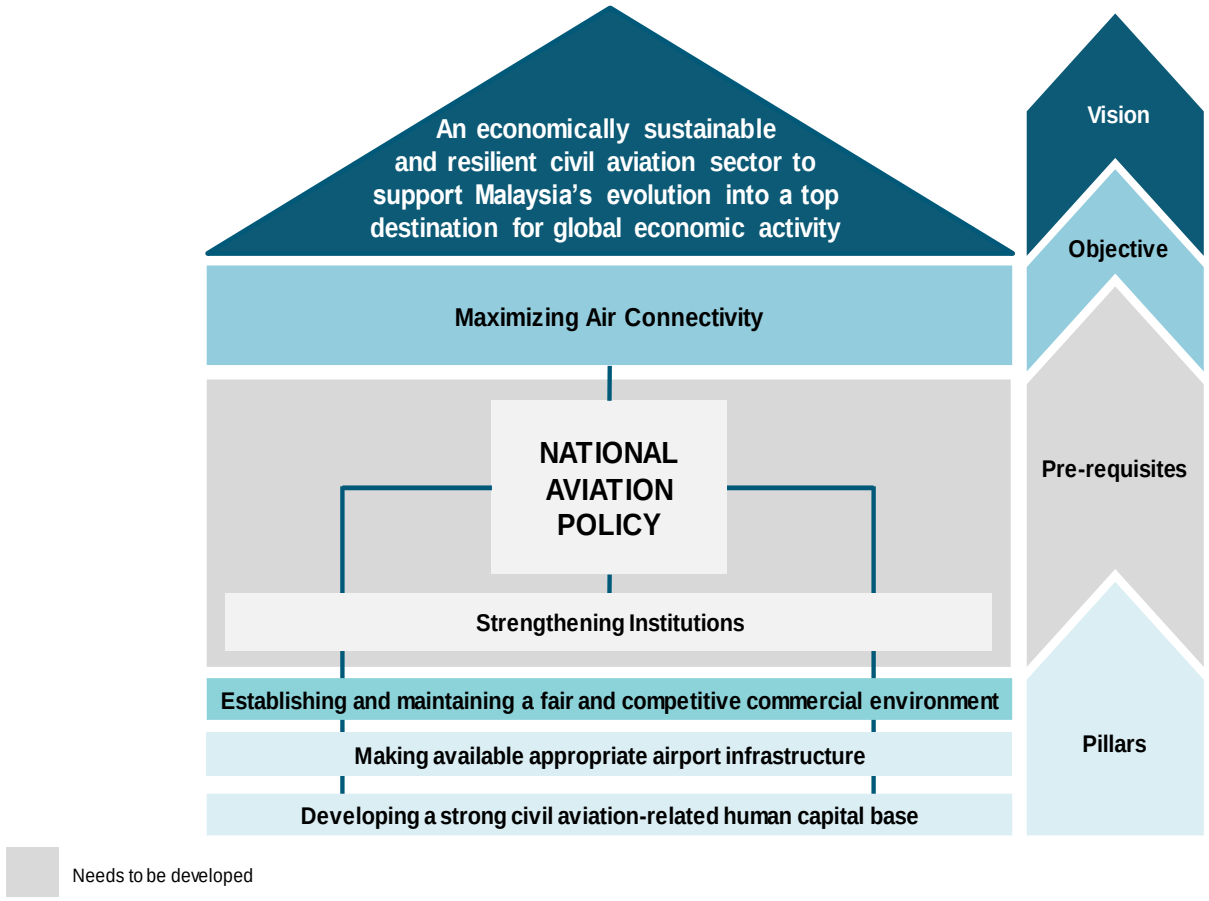
The Master Plan Framework is based on developing a liberalized and competitive sector, based on the following observations:

- The two main constraints for the sector, which prevent it from maximizing its contribution to Malaysia's economic growth, are low connectivity and sub-optimal airports
- Air connectivity and the strength of economic activities—particularly tourism and international trade—are mutually reinforcing. While air connectivity is strongly linked to international trade, especially in terms of a country's ability to participate in global value chains (GVCs), it is also very dependent on the strength of a country's economic base, as airlines and cargo operators choose to operate in countries where there is high demand for their services
- Meanwhile, lessons from airports around the world indicate that their financial performance and service delivery are correlated with their ability to operate on purely commercial terms, with minimal to no government intervention, regardless of their ownership structure. Indeed, this applies to all segments of the civil aviation sector, including airlines and ground-handling services
- Pursuing growth objectives for the sector should not be at the expense of consumer welfare, which needs to be safeguarded in terms of consumer protection measures, as well as, initiatives to ensure high standards of service delivery

Given its dynamism, the most optimal strategy for the development of Malaysia's civil aviation sector is one which safeguards the continuing commercial operation of the airlines sector, while also ensuring that the country's airports are sufficiently competitive to attract as many airlines and routes as possible. This needs to be achieved without sacrificing consumer welfare, service levels, and financial resilience. The overriding strategic objective for the sector, therefore, is to maximize Malaysia's air connectivity by attracting as many airlines as possible to operate out of Malaysia, coordinated with efforts to strengthen the country's tourism base and trade. This objective is achieved through increasing market liberalization for all aviation sub-sectors, and hence, their competitiveness.

The Master Plan Framework is illustrated in Figure 3.

Figure 3: The Master Plan Framework



Source: MAVCOM

Vision and Objective

The overall vision for the Proposed EMP is the development of an economically sustainable and resilient civil aviation sector that can significantly support Malaysia's evolution into a top destination for global economic activity by 2030, in line with the NTP's Policy Thrust 5 ("Expand global footprint and promote internationalization of transport services"). Given the strong interlinkage between the contribution of tourism and trade to economic growth and air connectivity, the main conduit between the civil aviation sector and its role in Malaysia's economic development is through air connectivity.

While it is a necessary condition, a high-performing civil aviation sector is only one of the enablers for Malaysia to achieve its vision of becoming a developed economy, by transforming itself into a top destination for global economic activity. The aviation sector needs to be part of an efficient, effective, and sustainable multi-modal transportation and telecommunications network, which in turn are instrumental in Malaysia's trajectory towards becoming a top destination for global tourism and trade. There is also a virtuous cycle at play—the growth of the aviation sector hinges on the performance of the tourism and trade sectors, from which the sector derives its demand in terms of passengers and cargo. Hence, manifesting the vision of the Proposed EMP requires meeting the strategic objective of maximizing air connectivity in parallel with efforts to grow Malaysia's economic base, particularly in terms of tourism and trade.

Strategic Pillars

Maximizing air connectivity requires commitment towards implementing three Strategic Pillars, which will be actualized through relevant action plans, outlined as part of the recommendations to the Proposed EMP:

- **The establishment and maintenance of a fair and competitive commercial environment**
  A high-performing civil aviation sector can only exist in a commercial environment that is fair and competitive. While "fairness" is multi-dimensional, MAVCOM has articulated that it applies fair competition principle in terms of economic regulation of the Malaysian civil aviation sector, which promotes equity or distributive justice as part of the overall objective of maximizing consumer welfare, while also safeguarding the sector from anti-competitive practises. This principle is also expressed through effective consumer protection, as well as, appropriate public service obligations (PSOs)

- **The availability of appropriate airports infrastructure that is efficient and effective in terms of financial performance and service delivery**
  High levels of air connectivity are enabled by an optimal airport infrastructure, which is defined as one which meets the service level requirements of airport users, i.e. passengers and airlines, as well as, one which is financially sustainable. Airlines choose to fly into airports that provide a high degree of operational efficiency and service quality, which affect their own efficiency, pricing, and networks. Given the high capital and operational costs involved in developing and running airports, it is also imperative for airports to achieve the most optimal returns relative to their funding costs

- **The establishment of a strong civil aviation-related human capital base to support the development of the sector**
  High air connectivity and an optimal airports infrastructure are only possible if it is supported by effective and efficient human capital, not only in terms of technical skills, but managerial and administrative as well

Prerequisites for the Proposed EMP

It should be emphasized that the successful implementation of the Strategic Pillars outlined above hinges on two factors: the existence of strong institutions and the establishment of a National Aviation Policy (NAP or the Policy).

A. Strong institutions

The Government of Malaysia plays many overlapping and, at times, contradictory roles in relation to the Malaysian civil aviation sector. A critical factor for the successful implementation of the Proposed EMP and its recommendations, therefore, is a stronger delineation of these roles and responsibilities. This is aimed at eliminating conflicts of interest, in addition to providing consistency in policy aims and directions.

Moreover, as outlined in Section 5 of this document, the implementation of the Proposed EMP's recommendations requires a relatively high degree of coordination between ministries and agencies. Hence, the capacity of these institutions needs to be strengthened in terms of human capital, technical and operational efficiency, as well as, technological inputs. For instance, as the global aviation industry evolves, capacity is required to assess and prepare for increased liberalization on one hand, and the game-changing impact of technologies, on the other.

B. National Aviation Policy

Notwithstanding the establishment of the NTP, the implementation of the Proposed EMP still requires the development of an NAP as its key enabling instrument. While the draft NTP[4] includes measures related to the civil aviation sector, these measures are placed within the context of a multi-modal transportation framework and are not necessarily specific to the aviation sector. As highlighted, the terms of reference for an NAP should include the following:

- Identification of clear objectives and priorities for the development of the civil aviation sector, with clear directions on the balance of priorities between economic, safety and security, environmental, and societal imperatives
- Overarching policies on the economic management of the civil aviation sector, including but not limited to, liberalization, and ownership and management of transportation assets
- Terms of reference for supplementary guidance for the sector, including legislation, regulations, and related plans and strategies

Interlinkages Within the Framework

Regardless of the organization of the Proposed EMP's recommendations according to respective pillars and overarching initiatives within the Framework, all components of the Proposed EMP are interlinked with each other. Therefore, these recommendations need to be implemented in a comprehensive, rather than in a piecemeal manner, for the Plan to be effective.

[4] The NTP was subsequently launched on the 17th of October 2019. The Policy document is available at: https://www.pmo.gov.my/wp-content/uploads/2019/10/National-Transport-Policy-2019_2030EN.pdf

Nonetheless, in order of priority, the action and implementation items that should be implemented first are outlined in Table 1. It should be noted that some of these action items may have a long implementation period:

Table 1: Priority Recommendations for the Proposed EMP

Strategic Pillar	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders
Establishing and maintaining a fair and competitive commercial environment	All	Reducing government interference in commercial decision-making	Abolishing the golden share in MAHB	Short-term	MOF, MAB
Making available appropriate airports infrastructure	Airports	Greater commercialization of the airports industry	Granting full capex responsibility to operators	Medium- to long-term	MAHB, MOT, MOF
		Improving service levels	Completing implementation of the QOS framework for all airports	Foundation-setting	MAVCOM, MAHB, SATSSB, other airport operators
			Reforming the ground-handling sub-sector	Medium- to long-term	MOT, MAHB, MAVCOM, ground-handlers
			Committing to integrated airport terminals	Medium- to long-term	MOT, airport operators

Master Plan Recommendations

The recommendations for the Proposed EMP were then developed based on the Framework explained above. These recommendations are summarized in Table 2:

Table 2: Summary of the Master Plan Recommendations

Prerequisite	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders Involved
National Aviation Policy	All	Developing an NAP	Developing an NAP	Foundation-setting	MOT

Objective	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders Involved
Maximizing air connectivity	All	Strengthening Malaysia's economic base	Coordinating tourism development plans with air routes in terms of the Air Traffic Rights (ATR) negotiations with other countries	Foundation-setting	Ministry of Tourism, Arts and Culture (MOTAC), Tourism Malaysia, MOT, MAVCOM, domestic and foreign airlines, airports
			Coordinating the development of air connectivity with initiatives, such as the Logistics and Trade Facilitation Master Plan (LTFMP)		MOT-LTFMP Taskforce, Ministry of International Trade and Industry (MITI), Ministry of Economic Affairs (MEA) MAVCOM, air freight companies, airports
	Airlines	Improving utilization of ASAs	Ensuring that ASAs are linked to connectivity considerations	Long-term	MOT, MAVCOM

Objective	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders Involved
Maximizing air connectivity (cont.)	All	Ensuring multi-modal, seamless connectivity	Establishing a policy commitment for transportation development plans to account for their impact on and connectivity with other modes of transport	Foundation-setting	MOT, MEA, MAVCOM, Agensi Pengangkutan Awam Darat (APAD)

Strategic Pillar	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders Involved
Establishing and maintaining a fair and competitive commercial environment	All	Enforcing a sound and updated aviation-related competition law	Applying competition law based on fair competition principle	Short- to medium-term	MAVCOM
			Applying competition law based on free competition principle	Medium- to long-term	MAVCOM
			Incorporating competitive neutrality principle and rules on subsidies	Medium- to long-term	MAVCOM
			Revision of Competition-related Guidelines to ensure relevance	Medium- to long-term	MAVCOM

Strategic Pillar	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders Involved
Establishing and maintaining a fair and competitive commercial environment (cont.)		Promoting liberalization of ownership-related measures for the civil aviation industry	Phased approach to liberalize ownership/equity policy of airlines	Medium- to long-term	MOF, MOT, MAVCOM
			Phased approach to liberalize ownership/equity policy of ANSP	Medium- to long-term	MOF, MOT, MAVCOM
		Reducing government interference in commercial decision-making	Abolishing the golden share in MAHB	Short-term	MOF, MAB
	Airlines	ASEAN community carrier	Championing the establishment of a community carrier in ASEAN	Long-term	MOT, MAVCOM, airlines
Making available appropriate airports infrastructure	Airports	Greater commercial behaviour of airports	Granting full capex responsibility to operators	Medium- to long-term	MAHB, MOT, MOF
			Introducing competition in two phases • Decentralization of MAHB • Introducing different airport networks	Medium- to long-term	MAHB, MOT, MOF
		Improving service levels	Full implementation of QOS Framework for all airports	Foundation-setting	MAVCOM, MAHB, SATSSB, other airport operators

Strategic Pillar	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders Involved
Making available appropriate airports infrastructure (cont.)			Reforming the ground-handling sub-sector • Linking ground-handling services to airport performance (via strengthening Conditions of Use)	Medium- to long-term	MAHB, MOT, MOF
			• Liberalizing the ground-handling sub-sector	Medium- to long-term	MOT, MAVCOM, GHL holders, airports, airlines
			Developing a framework to measure the efficiency of Malaysia's airports	Foundation-setting	MAVCOM
	Airports	Improving service levels (cont.)	Committing to integrated terminals: Policy commitment that airport terminals need to be integrated. In instances where disparate terminals have been built, airside and landside connectivity need to be provided	Short-term	MOT, airport operators

Strategic Pillar	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders Involved
Developing a strong civil aviation-related human capital development base	All	Setting the baseline to develop a coordinated talent development strategy	• Establishing a human capital database for the sector • Establishing a human capital development working committee for the sector • Study the sector workflow and value chain	Foundation-setting	MOT, MOHR, MAVCOM, CAAM, industry players
		Developing and implementing an industry-wide coordinated talent development strategy	• Developing effective career-pathing for the sector • Setting up a pool training fund	Short- to medium-term	• Working committee • MOHR, MOT, MAVCOM, CAAM, industry players
			• Developing industry training modules involving partnerships between industry and academia	Medium-term	Learning institutions, industry players

Conclusion

The Proposed EMP has been developed by MAVCOM as a set of proposals for the MOT. It is intended to be implemented over the long-term between 2021 and 2030. The years 2019 and 2020 are the foundation-setting years, where enabling measures—such as the establishment of new policies, accompanying strategies and plans, and other factors such as institutions and baselining—should be undertaken.

It must be emphasized that the following prerequisites should be met for the Proposed EMP to achieve its vision and objective of developing an economically sustainable and resilient civil aviation sector that will contribute significantly to Malaysia's trajectory towards a global economic centre of activities. These are:

- The strengthening of civil aviation-related institutions
- The development of an NAP
- The comprehensive and integrated implementation of all the Proposed EMP's recommendations

Glossary of Sources

Sources	
AirportIS	-
ASL Holders	Licence holders of Air Service License issued by MAVCOM
AOL Holders	Licence holders of Aerodrome Operator License issued by MAVCOM
ASP Holders	Licence holders of Air Service Permit issued by MAVCOM
BNM	Bank Negara Malaysia
CAPA	Centre for Aviation
DOS	Department of Statistics, Malaysia
IATA	International Air Transport Association
IMF	International Monetary Fund
Thomson Reuters	-
World Bank	-

Table of Abbreviations

Abbreviations		Abbreviations	
11MP	11th Malaysia Plan	CNU	connectivity unit
ACI	Air Connectivity Index	COL	critical occupations list
Act 712	Malaysian Competition Commission Act 2010	CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
Act 771	Malaysian Aviation Commission Act 2015	DCA	Department of Civil Aviation
AirAsia	AirAsia Berhad	DORA	Airport Regulation Document
ANS	air navigation services	DOS	Department of Statistics
ANSP	air navigation service provider	E&E	electrical and electronic
APAD	Agensi Pengangkutan Awam Darat	EBITDA	Earnings Before Interest, Tax, Depreciation, and Amortization
ASA	air services agreement	EPF	Employees Provident Fund
ASAM	ASEAN Single Aviation Market	EPP 11	Entry Point Project 11
ASEAN	Association of Southeast Asian Nations	EPU	Economic Planning Unit, Malaysia
ATC	air traffic control	EU	European Union
ATR	air traffic right	FireFly	FlyFireFly Sdn. Bhd.
BAA	British Airports Authority	FOC	flag of convenience
bbl	barrel	FSC	full-service carrier
BIMP-EAGA	Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area	FTA	free trade agreement
Brahim's SATS	Brahim's SATS Food Services Sdn. Bhd	FTK	freight tonne-kilometre
CA	conditional approval	G2G	government-to-government
CAAM	Civil Aviation Authority of Malaysia	GDP	gross domestic product
CAG	concession agreement	GHL	ground handling licence
CAGR	compound annual growth rate	GHSP	ground-handling service provider
capex	capital expenditure	GLC	government-linked company
CATA	Comprehensive Air Transport Agreement	GLIC	government-linked investment company

Abbreviations		Abbreviations	
GOE	government-owned enterprise	MEA	Ministry of Economic Affairs
GoM	Government of Malaysia	MITI	Ministry of International Trade and Industry
GVC	global value chain	MOF	Ministry of Finance
HSR	Kuala Lumpur-Singapore High Speed Rail	MOF Inc.	Minister of Finance Incorporated
IATA	International Air Transport Association	MOHR	Ministry of Human Resources
ICAO	International Civil Aviation Organization	NASP	National Airports Strategic Plan
JV	joint venture	NTMP	National Tourism Policy
KNB	Khazanah Nasional Berhad	NTP	National Transport Policy
LCCT	low-cost carrier terminal	OA	Operating Agreement
LTAT	Lembaga Tabung Angkatan Tentera	opex	operational expense
LTFMP	Logistics and Trade Facilitation Master Plan	PMI	Purchasing Managers' Index
LTH	Lembaga Tabung Haji	PNB	Permodalan Nasional Berhad
MA Sepang	Malaysia Airport Sepang	PPOB	principal place of business
MAB	Malaysia Airlines Berhad	PPP	public-private partnership
MACPC	The Malaysian Aviation Consumer Protection Code 2016	ppt	percentage point
MAG	Malaysia Aviation Group Berhad	PSC	passenger service charge
MAHB	Malaysia Airports Holdings Berhad	PSO	public-service obligation
Malindo	Malindo Airways Sdn. Bhd.	PTK	passenger-tonne kilometre
MAS	Malaysia Airlines System	QOS	Quality of Service
MASB	Malaysia Airports Sdn. Bhd.	R&D	research and development
MASwings	MASWings Sdn Bhd	RAS	Rural Air Services
MAVCOM	Malaysian Aviation Commission	REIT	Real Estate Investment Trust

Abbreviations		Abbreviations	
RFS	road feeder service	SATSSB	Senai Air Transport Services Sdn. Bhd.
RM	Ringgit Malaysia		
SOE	state-owned enterprise	TFP	total factor productivity
STOLport	short take-off and landing airport	US	United States
		USD	United States Dollar

Malaysian Airport Codes

No.	Airport Code	Airport Name
1	BKI	Kota Kinabalu International Airport
2	JHB	Senai International Airport
3	KBR	Sultan Ismail Petra Airport (Kota Bharu)
4	KCH	Kuching International Airport
5	KTE	Kerteh Airport
6	KUA	Sultan Ahmad Shah Airport (Kuantan)
7	KUL	KL International Airport
8	KUL-T1	KLIA Main Terminal Building
9	KUL-T2	klia2
10	LBU	Labuan Airport
11	LGK	Langkawi International Airport
12	MKM	Mukah STOLport
13	PEN	Penang International Airport
14	SZB	Skypark Terminal Sultan Abdul Aziz Shah Airport (Subang)
15	TGC	Tanjung Manis STOLport
16	TGG	Sultan Mahmud Airport (Kuala Terengganu)

Other Airport Codes

No.	Airport Code	Airport Name
1	AMS	Schiphol Airport, The Netherlands
2	BCN	El Prat Airport, Spain (Barcelona)
3	BKK	Suvarnabhumi Airport, Thailand (Bangkok)
4	BWN	Brunei International Airport, Brunei
5	CGK	Soekarno-Hatta International Airport, Indonesia (Jakarta)
6	DPS	Ngurah Rai International Airport (Bali)
7	LGW	Gatwick Airport, United Kingdom (London)
8	MAD	Madrid-Barajas Airport, Spain (Madrid)
9	MNL	Ninoy-Aquino International Airport, The Philippines (Manila)
10	PNH	Phnom Penh International Airport, Cambodia
11	RGN	Yangon International Airport, Myanmar
12	REP	Siem Reap International Airport, Cambodia
13	SIN	Changi Airport, Singapore
14	VTE	Wattay International Airport, Laos (Vientiane)

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SECTION 1: INTRODUCTION

If Malaysian civil aviation had an official date of birth, it would probably be 1 May 1947, when then-Malayan Airlines Limited flew its first flight out of Kuala Lumpur Airport in Sungai Besi. However, despite its vintage and a history encompassing major developments such as privatization and liberalization, no comprehensive long-term policies or plans have been formally developed specifically for the sector.

Recognizing this lacuna, on 26 March 2016, MAVCOM's Commissioners, decided that the Commission, as the economic regulator for the Malaysian aviation services industry, would propose a Master Plan to the MOT.

This is in line with section 17 of Act 771, which states that one of the functions of the Executive Chairman of the Commission (and by extension, the Commission) is to "advise the Minister (of Transport) on policies and plans on all matters relating to civil aviation and to develop strategies in line with such policies and plans".

The Proposed EMP therefore constitutes a proposal from the Commission to the MOT.

Sectoral Coverage of the Master Plan

As an economic master plan, this proposal covers economic matters related to the sector but does not directly address technical, safety, and environmental issues. However, it highlights the interlinkages between these areas and the Proposed EMP's recommendations, if any.

The Proposed EMP will cover the following sub-sectors, which are aligned with the areas of responsibility for MAVCOM defined in Act 771:

- Passenger and cargo air transport, both scheduled or unscheduled (charter)
- Aerodrome (airport) operations
- Ground-handling services[5], including:
    - Passenger handling
    - Refuelling
    - Catering
    - Line maintenance, comprising:
        - Routine services performed before flights
        - Non-routine services requested by airport users
        - Provision and administration of spare parts

[5] As per Schedule 2 of Act 771.

As such, the Proposed EMP does not encompass sub-sectors considered 'upstream' such as aircraft designs, engineering and manufacturing, leasing, and maintenance, repair and overhaul (MRO) services. This is illustrated in Figure 1.

Figure 1: Value Chain of the Aviation Industry and Coverage of the Master Plan

Source: MAVCOM

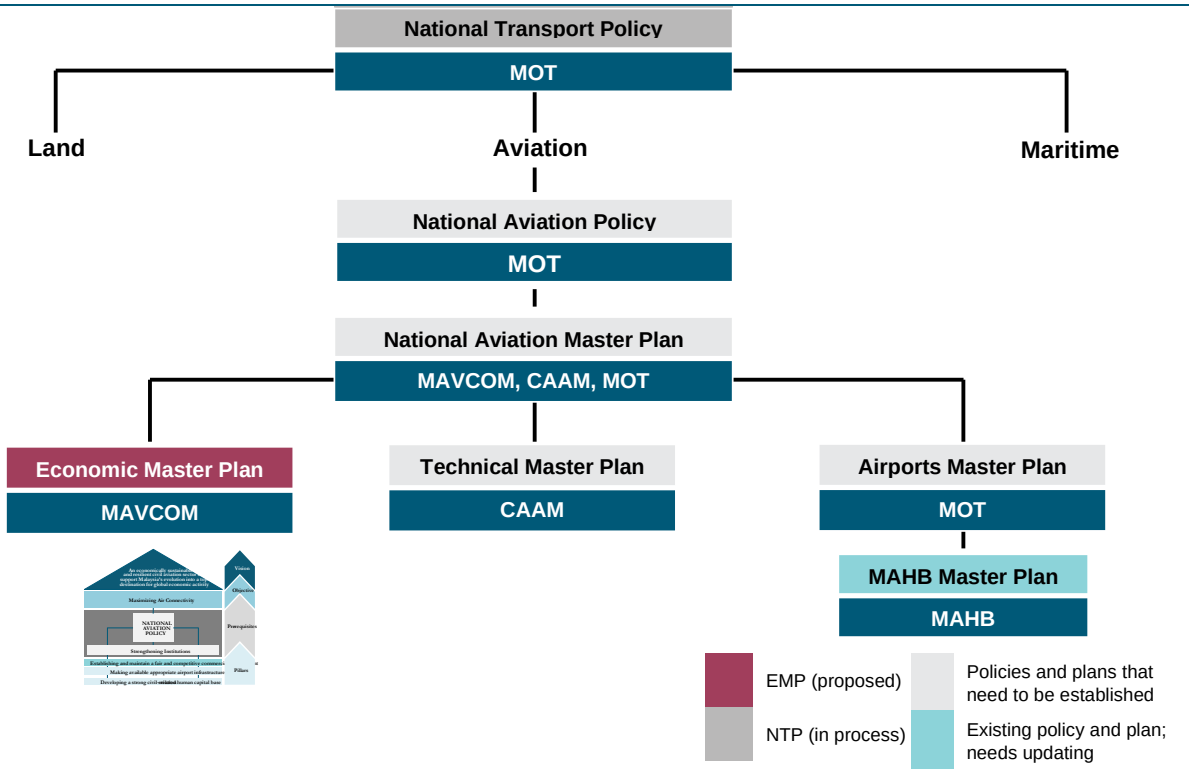
Linkages to National-level Policies and Plans

The Proposed EMP needs to be aligned with existing policies, plans, and international commitments related to the economic development of the Malaysian civil aviation sector. These include, but are not limited to, the following:

- The NTP
- The 11MP
- ASAs and other international commitments

The Proposed EMP should be part of a set of policies and plans to guide the development of the Malaysian civil aviation sector, as illustrated in Figure 2.

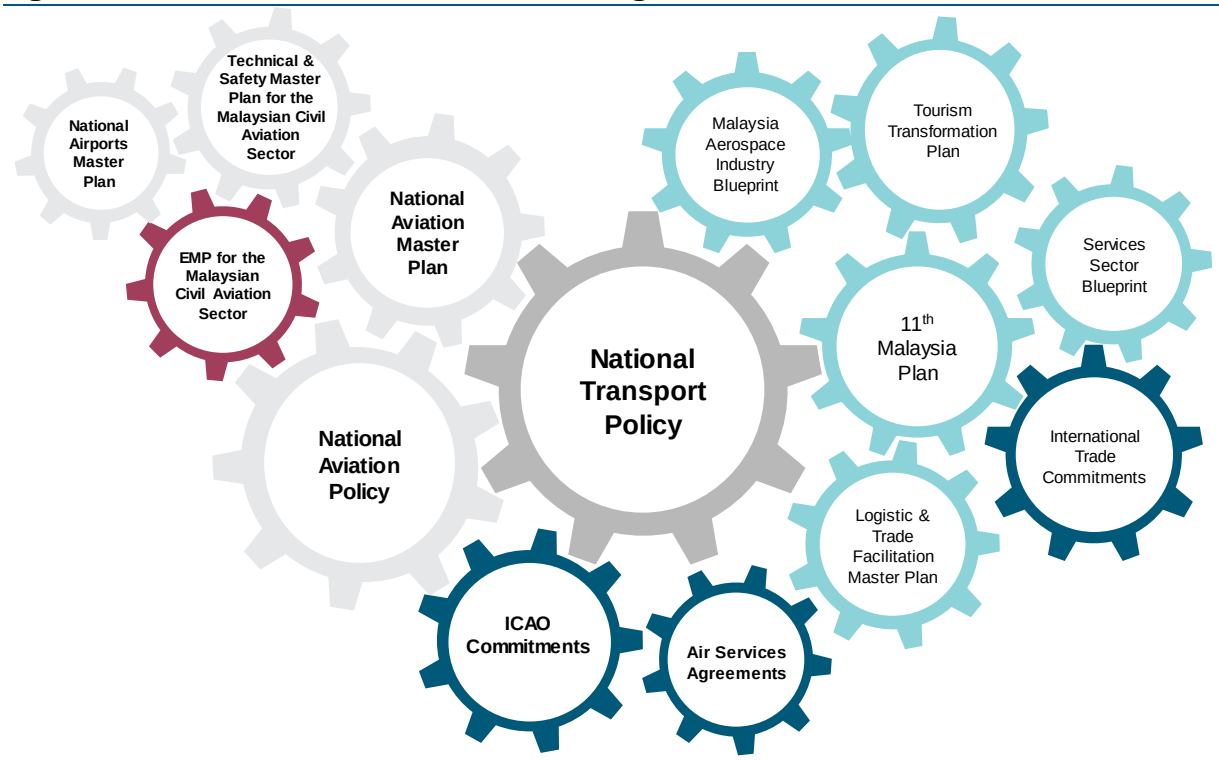
Figure 2: Policies and Plans That Should Guide the Development of the Malaysian Civil Aviation Sector



Source: MAVCOM

Figure 3 illustrates the existing policies, plans, and international obligations that are relevant to the Proposed EMP (this list is not exhaustive). It also illustrates the policies and plans that need to be developed, both as a prerequisite for the implementation of the Proposed EMP, and in tandem with the Proposed EMP itself.

Figure 3: Policies, Plans, and International Obligations That Are Relevant to the Master Plan



Source: MAVCOM

National Transport Policy

Given the absence of an NAP, the Proposed EMP will need to be guided by the NTP, which is currently being developed by the MOT, for policy guidance[6]. As at time of writing, the Final Report for the NTP is due to be tabled to the Cabinet for approval. The vision for the NTP, scheduled for implementation from 2019 until 2030, consists of five Policy Thrusts, which are anchored on the principles of sustainable development, covering the following areas:

- Economic competitiveness
    - Seamless connectivity and movement through innovations and technologies, as enabler for competitive economic growth in manufacturing, services, agriculture, tourism, and trading activities
    - Delivering reliable, efficient, affordable, and high-quality services
    - Skilled human capital
    - Leaving an imprint at the global level

[6] As at 15 January 2020, the NTP had been tabled to the Cabinet and subsequently published.

- Social aspects
    - Inclusivity and accessibility of transport services
    - Safety and security of transport services
    - Public participation/stakeholders' engagement in the planning/development of transport initiatives
- Environment
    - Fuel consumption and emission/pollution control
    - Environmental protection and conservation
    - Sustainable consumption and production

The framework and objectives of the Proposed EMP are aligned with four out of five of the Strategic Thrusts outlined in the NTP. These are:

- **Policy Thrust 1:**
  Strengthen governance to create a conducive environment for the transport sector
- **Policy Thrust 2:**
- Optimise, build and maintain the use of transport infrastructure, services and networks to maximise efficiency
- **Policy Thrust 3:**
  Enhance safety, integration, connectivity and accessibility for seamless journey
- **Policy Thrust 5:**
  Create global footprint and promote internationalisation of transport services

Parts of Policy Thrust 3 relating to safety and security, and Policy Thrust 4 ("Advance towards green transport ecosystem"), are not covered within this Proposed EMP.

Proposal for a National Aviation Policy

Notwithstanding the existence of the NTP, the implementation of the strategies outlined in the Proposed EMP requires policies specifically tailored towards the civil aviation sector. Moreover, while this Proposed EMP only covers economic issues related to the sector, an overarching NAP would need to encompass all areas of the sector—economic, technical, safety, security, and environmental.

Indeed, the latest draft of the NTP includes a recommendation for the development of an NAP. The NAP should be aligned with the NTP at the more macro level and articulate the GoM's policy positions on the following, among others:

- Identification of clear objectives and priorities for the Malaysian civil aviation sector, particularly in balancing economic, technical, safety, security, and environmental priorities
- Liberalization of the sector, whether in terms of ownership or other forms of increasing foreign and/or private sector participation[7]
- Direction of funding for aviation-related infrastructure, and therefore ownership and management of aviation-related assets in the future[8]

[7] Refer to MAVCOM Position Paper on Sequencing Liberalization for the Aviation Services Sector (July 2019).
[8] Refer to MAVCOM Position Paper on Malaysia's Airports Industry Structure (December 2019).

Although some of these issues will be covered in the NTP, there is a need to articulate policy positions for the civil aviation sector in more detail than is covered by the NTP, which is meant to consolidate the policies for the various transport modes with the emphasis being on multi-modal connectivity.

Hence, the Proposed EMP includes a recommendation for the development of an NAP, with a proposal for terms of reference for such a policy, as articulated in Section 4 of this document.

11th Malaysia Plan

Recognizing the importance of the aviation sector to the economy, the 11MP outlined several aviation-related initiatives for the five years leading up to 2020. These include:

- The establishment of MAVCOM and the corporatization of the Department of Civil Aviation (DCA) into CAAM
- Strengthening rural air services (RAS)
- Upgrading airports and air navigation infrastructure
- Expanding capacity for air freight

Aviation-related initiatives are embedded in the Fifth Economic Thrust of the 11MP, i.e. "strengthening infrastructure to support economic expansion", which also includes initiatives related to other transportation modes (road, rail, and sea), as well as, overall logistics. Detailed background for these initiatives can be found in other policy documents, such as:

- The Services Sector Blueprint, 2015 – 2020, developed by the Economic Planning Unit (EPU)[9]
- The Logistics and Trade Facilitation Master Plan (LTFMP) 2015 – 2020, developed by the EPU and administered by the Logistics and Trade Facilitation Task Force, under the MOT
- The National Tourism Transformation Programme 2.0, currently being developed by MOTAC

Table 1 highlights the progress of the aviation-related initiatives in the 11MP, as highlighted in the Mid-Term Review of the 11MP released in October 2018.

Table 1: Progress Update of Aviation-Related Initiatives in the 11MP

Section	Details
Performance of Focus Areas: Building an Integrated Need-Based Transport System	• MAVCOM, established in 2016, regulates the national civil aviation sector, improves capacity of operators, and manages competition through issuance of licences and allocation of routes • MAVCOM introduced the new Passenger Service Charge (PSC) regulation with effect from 1 January 2017, to ensure the pricing of PSC accounts for passenger needs and airport operators' costs to reduce the financial burden of the GoM • The efficiency and effectiveness of the sector has improved further through the upgrading of airport infrastructure and improvement of the system

[9] The EPU is currently under the newly-formed Ministry of Economic Affairs.

Section	Details
Performance of Focus Areas: Building an Integrated Need-Based Transport System (cont.)	• The upgrading of Langkawi International Airport (LGK) is expected to enhance airport services capacity and aircraft movements once completed
Pillar 3: Pursuing Balanced Regional Development—Strategy A4: Enhancing Association of Southeast Asian Nations (ASEAN) Sub-regional Cooperation	• Enhancing connectivity in the Indonesia-Malaysia-Thailand Growth Triangle and Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) sub-regions: ○ Malaysia will focus on seven BIMP-EAGA Priority Infrastructure Projects to increase trade and connectivity with Member States. Among others, Kota Kinabalu, Sabah has been identified as the sub-regional aviation hub to cater for the increase in passengers and freight services, while the construction of Mukah Airport (MKM) in Sarawak is in progress for seamless air connectivity
Pillar 6: Strengthening Economic Growth—Strategy C1: Providing Quality Infrastructure	• Upgrading airport system and infrastructure: ○ Expansion of terminals, extension of runways, and enhancement of airport facilities will be undertaken in selected airports such as the Sultan Ismail Petra Airport, Kota Bharu (KBR), and Penang International Airport (PEN) to increase capacity and efficiency ○ The completion of upgrading works at the LGK is expected to reduce congestion and improve comfort for passengers • Aviation safety will be further strengthened through the upgrading of the air traffic management system which consists of communication, navigation, and surveillance systems to improve efficiency of the air navigation services • The Kuala Lumpur Air Traffic Control Centre once completed by 2020 will increase runway capacity from 68 aircraft movements per hour to 108 to strengthen KUL as the main gateway

Source: MEA

Regional and International Commitments

The Proposed EMP must also consider global and regional institutional developments, including Malaysia's aviation sector commitments related to ASAs and the ASEAN Single Aviation Market (ASAM).

C. Air services agreements

To date, Malaysia has entered into 106 bilateral ASAs.[10] Initially, Malaysia had entered into ASAs with countries in Europe and Asia. This was followed by ASAs with countries in the African and South American regions, consistent with Malaysia's involvement in the Non-Aligned Movement and the South-South Cooperation network. More recently, Malaysia had entered into ASAs with Bahamas (2016), Belize (2017), Guyana (2016), Jamaica (2016), Serbia (2015), Seychelles (2015), and Uzbekistan (2015). In addition, Malaysia had also recently reviewed or amended its existing ASAs including those with Morocco (2015), Nepal (2015), and Turkey (2017).

All ASAs entered into by Malaysia provide for the third and fourth Freedoms of the Air.[11] In addition, a majority of Malaysia's ASAs also contain the fifth freedom right—although, the number of ASAs with limited fifth freedom rights are approximately triple the ASAs with unlimited fifth freedom rights.[12]

D. ASEAN Single Aviation Market

The main driver of the civil aviation liberalization in ASEAN is the establishment of ASAM, which is an initiative to support the ASEAN Economic Community (AEC). Established in 2015, the AEC was a major milestone in the regional economic integration agenda in ASEAN. Under the AEC Blueprint 2025, ASEAN is envisioned to cooperate in the transport sectors towards greater connectivity, efficiency, integration, safety, and sustainability to strengthen ASEAN's competitiveness and foster regional inclusive growth and development. The AEC Blueprint 2025 also identified the target to strengthen ASAM for a more competitive and resilient ASEAN through:

- Advancing safer and more secure skies in the ASEAN
- Enhancing air traffic management efficiency and capacity through a seamless ASEAN sky
- Fostering greater connectivity, including the conclusion of aviation agreements with Dialogues Partners

Also relevant is the Kuala Lumpur Transport Strategic Plan for 2016 – 2025, which details the specific goals and actions for the aviation sector for the said period.

[10] Malaysia had negotiated for ASAs with Turkmenistan, Macedonia, and Paraguay, respectively, but no agreement was concluded.
[11] See Appendix 3 for definitions and illustrations of Freedoms of the Air.
[12] Refer to MAVCOM Technical Paper on Air Service Agreements (November 2018).

ASAM covers both economic and technical elements. Figure 4 provides details on the subject matters falling within the scope of ASAM.

Figure 4: ASEAN Economic Community and the Single Aviation Market Framework

ASEAN Economic Community

To create a prosperous, highly competitive, and economically integrated market and production base in ASEAN

ASEAN Single Aviation Market

To support the ASEAN Economic Community by facilitating the free, efficient, safe, and secure movement of people and goods within and potentially beyond ASEAN

Economic elements

- Market access
- Airlines ownership and control
- Tariffs
- Commercial activities
- Charters
- Airport user charges
- Consumer protection
- Competition law and policy/state aid
- Dispute resolution
- Dialogue partner engagement

Technical elements

- Air traffic management
- Aviation safety
- Aviation security

Source: MAVCOM

Master Plan Methodology

The development of the Proposed EMP was primarily based on internal research and analyses related to the economic development of the Malaysian civil aviation sector. The areas researched included:

- Analysis of Malaysia's air connectivity, for passenger and cargo
- Review of Malaysia's airports industry structure
- Assessment of ownership issues relating to Malaysia's civil aviation sector
- Malaysia's ASAs

Details of the methodology and key findings of the above are included in background papers, some of which have been published by MAVCOM. These papers are:

- **Technical Paper: Aviation Sector Multiplier (August 2017)**
  MAVCOM's estimate of the economic contribution and output multiplier for the Malaysian aviation sector and issues surrounding the use of multiplier estimations
- **Technical Paper: Defining and Measuring Air Connectivity (May 2018)**
  MAVCOM's calculations of the ACI and the Hub Connectivity Index, as well as, factors influencing air connectivity
- **Technical Paper: Airfares for Domestic Flights During Peak Seasons (August 2018)**
  Price multipliers for airfares due to peak seasons and the effects of price regulation and deregulation
- **Technical Paper: Air Service Agreements – Air Traffic Rights and Airline Nationality Requirement (November 2018)**
  The different approaches adopted in ASAs and the need for Malaysia to ensure policies are up to date with domestic economic objectives and international and regional developments
- **Position Paper: Sequencing Liberalisation for the Malaysian Aviation Services Sector (July 2019)**
  Malaysia's historical experience of liberalisation experienced by the aviation sector and recommendations to secure its benefits, including by promoting good governance
- **Position Paper: Malaysia's Airports Industry Structure (December 2019)**
  The industry structure of Malaysia's airports industry, issues and challenges arising from this structure and recommendations to improve the industry's competitiveness

The baseline findings and recommendations were then presented and discussed for consultation in four workshops with external stakeholders:

- Introductory Workshop : 28 November 2017
- Inception Workshop : 15 March 2018
- Interim Workshop : 28 June 2018
- Final Workshop : 12 – 13 November 2018

Participants in these Workshops included representatives from the MOT, CAAM, the MOF, MOTAC, airlines, airports, and ground-handling companies. Please refer to Appendix 1 and Appendix 2 for the list of participants and meeting notes for the workshops, respectively.

Feedback from the Workshops, as well as, meetings with selected stakeholders were then compiled and considered as input into the measures recommended in the Proposed EMP.

It should be noted that given its long implementation period, the Master Plan should be treated as a "living document", with recommendations reviewed at regular intervals, in order to allow for course-corrections should baselines and assumptions change in the future.

Dr Harry Bush, board member for NATS Holdings Ltd. and former Group Director for Economic Regulation at the United Kingdom Civil Aviation Authority, and Dr Volodymyr Bilotkach, Associate Professor at the Singapore Institute of Technology, were engaged by the Commission as external peer reviewers for the Proposed EMP. The Commission gratefully acknowledges their contributions.

Implementation Timeline of the Master Plan

It is envisaged that the Proposed EMP will be implemented in two phases:

- **Phase 1 (2019 – 2020): Foundation-setting**
  The implementation of the Proposed EMP will require several enabling measures to be undertaken. These include:
  - The establishment of required policies as well as attendant guidance documents. These include:
    - National Aviation Policy
    - National Airports Strategic Plan
  - Approval and disbursement of funding
- **Phase 2 (2021 – 2030): Implementation**
  To coincide with the implementation period of the NTP, and the 12th and 13th Malaysia Plans, the implementation of the Proposed EMP will be completed over three periods:
  - Short : completed by 2022
  - Medium : completed by 2025
  - Long : completed by 2030

SECTION 2: THE MALAYSIAN CIVIL AVIATION SECTOR – CURRENT LANDSCAPE

The framework and proposed recommendations for the Proposed EMP are based on MAVCOM's findings with regards to the regional and global positioning of the Malaysian civil aviation sector by 2030. This positioning took into consideration the following factors:

- **The role of the civil aviation sector in Malaysia's economy.** According to MAVCOM's estimates based on data provided by the Department of Statistics (DOS), the aviation sector contributed 0.6% to Malaysia's total gross domestic product (GDP) in 2015 (2010: 0.5%).[13] This estimate, however, belies the role that the industry plays as an enabler for the other economic activities, given that the sector produces an output multiplier of 2.1, meaning that every RM1 of output produced by the aviation sector leads to a 2.1 times increase in the output for the whole economy[14].
- **Malaysia's current and forecasted air passenger traffic.** The transportation of air passengers, through both scheduled and unscheduled flights, comprises 60.2% of the total GDP contribution from the sector in 2015.[15] Hence, the performance of passenger traffic has a significant impact on the growth of the civil aviation sector.
- **Passenger traffic growth is in turn connected to the central importance of connectivity to economic growth and competitiveness through tourism and trade links.** In this regard, MAVCOM had conducted a study to benchmark Malaysia's air passenger and cargo connectivity against other ASEAN Member States.
- **The role of airports in ensuring that Malaysia maximizes its potential for air connectivity**. This entails determining the following:
    - Whether Malaysia's airports should focus on developing a strong hub-and-spoke network, implying that all international traffic would be mainly channelled through KUL, with regional airports such as the Kota Kinabalu International Airport (BKI) and PEN feeding traffic into KUL as a hub; or
    - Whether Malaysia's airports industry structure and network should be determined by **market forces, particularly the dynamic conditions of the airlines sector**
- **The human capital landscape for the sector,** which provides integral support for the development of the industry.
- **The institutional framework** within which the sector operates, encompassing:
    - The legal and regulatory landscape for the sector
    - The role of the government
    - The commercial environment, exemplified by the following:
        - The liberalization regime, of both public and domestic ownership requirements
        - Safeguarding consumer welfare
        - The administration of PSOs

[13] MAVCOM's estimates based on latest available data provided by DOS.
[14] Refer to MAVCOM Technical Paper on the Aviation Sector Multiplier (August 2017) and Appendix 4 for a list of output multipliers for Malaysian industries.
[15] Latest available data, DOS.

In addition, given its long-term nature, recommendations developed as part of the Proposed EMP will also need to be cognizant of future trends that are potentially either headwinds or tailwinds for the economic development of civil aviation not only in Malaysia, but regionally and globally (see Box 1).

It is proposed that given trends in Malaysia's passenger traffic growth and the country's potential to grow both hub and direct passenger traffic, as well as, the dynamism of the airlines sector, that a strategy of allowing market forces to determine the role of airports is considered. This should be supported by a strong human capital base for the sector and a regulatory infrastructure that maintains a fair and competitive commercial environment.

The factors listed above and the positioning of the Malaysian civil aviation sector in 2030 are discussed in the following sub-sections.

Box 1: Future Trends Impacting the Malaysian Civil Aviation Sector in 2030 and Beyond

While it is not possible to "future-proof" completely, developing a long-term Master Plan requires foreseeing and recognizing trends that may impact implementation of the Plan's recommendations. This is to ensure that these measures are sufficiently flexible to address potential "game-changers" that may arise, whether within Malaysia or from external forces.

Domestically, Malaysia's long-term growth prospects are dampened by productivity concerns, as Malaysia's total factor and labour productivity growth have not kept pace with those of comparator countries such as South Korea and Singapore, which have experienced similar rates of labour and capital accumulation over the past 25 years.

Globally, one of the more immediate threats to long-term economic growth that may come to fruition over the next decade is that of increasing economic insularity and trade protectionism, symptomized by Brexit in Europe and the United States' (US) shift towards protectionism. Exacerbating this closing of economic borders is rising geopolitical tensions, both of which threaten to negatively impact the demand for air travel. Meanwhile, demographic shifts in Asia and the rest of the world will also affect the way that aviation business models evolve in the future, along with technological advancements and environmental precepts. This Box provides a survey of the future economic, political, technological, and demographic trends that are foreseen to affect the development of the civil aviation sector in 2030.

Economics

Structural headwinds threaten Malaysia's long-term growth prospects

According to the World Bank (2016), Malaysia experienced similar rates of accumulation of labour and capital in the last 25 years as South Korea and Singapore, but total factor productivity (TFP)[16] growth in Malaysia only averaged 1.8% compared to 2.2% in the other two countries. Malaysia's labour productivity growth has similarly failed to keep pace with that of these comparator countries. While Malaysia's economic growth has been relatively resilient thus far, structural constraints mean that the country can no longer rely on increasing utilization of factors of production (labour, land, capital) to continue to drive growth. Capital accumulation faces headwinds as the output from oil and gas—Malaysia's primary commodities—decline,

[16] TFP, which is typically interpreted as an economy's use of technological development, measures the efficiency of capital and labour used to produce goods and services.

while labour force growth is expected to slow down in line with demographic transition. Regarding the latter, while Malaysia's demographic transition is at a more nascent stage compared to some other ASEAN countries, by 2030, Malaysia's population would have already begun to age, with the share of the population over the age of 65 expected to be close to 10%.

Trade wars

Trade protectionism will pose multiple threats to the aviation industry in the long run, in several ways:

- **Increasing costs for airlines:** The recent imposition of tariffs by the US targeting steel and aluminium from Canada, the European Union (EU), and Mexico could result in businesses dismantling GVCs into more localized models that could increase the costs of manufacturing aircraft by raising prices of raw materials, which is likely to raise airfares in the long run
- **Reduction in cargo volumes as trade barriers—both at- and behind-the-border—are fortified,** potentially reducing total trade by 2030, which is currently forecasted to be USD73tn (2018: USD48tn)

Competing modes of transportation

Research and development (R&D) activities have enhanced both the technical and commercial viability of new modes of transport. These include hyperloops and more advanced high-speed rail, which in the very long-run could act as substitutes for short-haul air travel. As such, airlines could shift to operating long-haul flights only. However, this new scenario also offers airlines an opportunity to embark on a partnership with these new modes of transport to develop an integrated transportation solution to promote efficient growth in connectivity.

Politics

Global flashpoints

Parochial and protectionist sentiments are expected to prevail into the 2020s, where multiple flashpoints pose significant risks to the aviation sector. Rising geopolitical tensions in several regions around the world, particularly in the Middle East and Asia Pacific, could inhibit the movement of people and goods. In recent years, unilateral actions such as China's enforcement of an Air Defence Identification Zone over the South China Sea, Saudi Arabia closing its airspace to Qatar, and Russia's threat to close Siberian airspace for airlines flying to Asia, are the by-products of geopolitical squabbles. If mismanaged, militarization of the skies could have adverse effects on the safety of both the airlines and passengers, as well as, increasing the cost of flying for passengers. Such effects could revise global GDP growth downwards, currently forecasted at 2.9% in 2030.

Supranational bodies undermined

Nationalist sentiments are also beginning to threaten the integrity of existing international institutions. In appealing to voter bases, several world leaders have upended international bodies such as the World Trade Organization (WTO) and the Asian Development Bank. They have also undermined long-established arrangements such as the North American Free Trade Agreement (now known as the United States-Mexico-Canada Agreement). In the future, global leaders may resort to establishing alternative regional and global institutions that could rival long-established ones. Global aviation bodies, such as the International Civil Aviation Organization (ICAO), could face challenges to harmonize aviation regulations if alternative bodies are set up.

In ASEAN, the implementation of ASAM to connect primary and secondary cities in ASEAN with each other could also be undermined by nationalist sentiments. This could affect connectivity for an additional 90mn people who are expected to live in ASEAN cities by 2030. In mitigating these risks, airlines and international bodies should engage in more effective stakeholder management, especially with developing countries, and ensure balanced representation in global discussions to avoid having two sets of rules, which will only increase compliance costs for airlines.

Demographics

The middle-class continues to rise in Asia ...

Given a rising middle class and a relatively young population, Asia is poised to play a leading role in driving the global economy in decades to come. Middle-income population in both the Asia Pacific and Southeast Asian region is forecasted to be 76% and 51% respectively in 2030, up from 33% and 24% in 2015. The increase in population is likely to be coupled with growing spending power, some of which could be channelled to air travel. As such, airlines should start assessing the Asian market to search for new growth opportunities and identify risks that could impede operations.

... amidst an aging global population

Along with a rising young population, the proportion of people aged 64 and above worldwide are expected to increase to 11.7% by 2030 from 8.7% in 2017. Although an aging population may not change the demand for air travel, preferences will shift. Airlines would need to be equipped to cater to the needs of older passengers or passengers with reduced mobility—not just in the air, but at every stage of their journey, in addition to making flights more comfortable. Airlines could consider placing healthcare workers such as doctors and nurses on all flights, along with medical supplies and basic healthcare facilities. As such, airplane design could also be changed to accommodate such preferences, although this could result in higher costs.

Technology

Airports of the future

As global demand for flying is to nearly double to 7.2bn by 2030, challenges at the airport level will become more apparent in handling the increase in the number of passengers. As airports cannot expand indefinitely, pressure will build on airport assets to ensure a smooth journey for passengers. Therefore, airports of the future would have to rely more on technology to mitigate the risk of a capacity crunch. Future airports could also automate the experience to reduce the possibilities of human errors. By using big data to generate predictive analyses, airports and airlines can use artificial intelligence to predict and mitigate the impact of any disruptions. This would change the nature of work in airports of the future as robots are increasingly used to work alongside humans, taking on physical and repetitive tasks, with humans in positions where robots have not yet become dominant. Improved facilities could include enhanced checkpoints for known travellers, more effective bag-tracking, and flexible infrastructure. In ensuring a smooth journey for all passengers, airports must play a leading role in educating passengers about the enhanced journeys to avoid any mishaps as the success rate of utilising the technology at airports would hinge on well-informed and engaged passengers.

Advances in aircraft technology

Several new long-haul routes introduced in the world today (e.g. Houston-Sydney, Singapore-New York, London-Perth) have all been made possible due to advances in aircraft technology (particularly in materials engineering) and efficiency in fuel usage. These flights are likely to appeal more to business/premium travellers who prefer the convenience of direct flights without going through long overlays. This would lead to a worldwide requirement for close to 40,000 new jet airplanes by 2030, valued at USD5.9tn. In the future, with advances in technology—self-flying planes, more efficient jet fuel, and lighter steel/aluminium—could all encourage more long-haul flights as other advances in technology promote novel modes of transport (e.g. high-speed rail, hyperloop) for point-to-point, short-haul flights. As this happens, establishing relationships with other transport providers become more important in providing a seamless end-to-end journey for passengers. In addition, advances in aircraft technology could also broaden the possibilities for hub bypass, increasing the likelihood that future airport structures will be determined by market forces.

Environment

Carbon reduction

Environmental activism against industries such as aviation are expected to rise as large-capacity clean energy comes to the market. With increasing R&D work, clean energy could displace fossil fuels and power other modes of transport such as high-speed rail, displacing airlines over short-haul flights. The ICAO has agreed on a global emissions-reduction scheme that will apply to passenger and cargo flights that generate more than 10,000 tonnes of annual greenhouse gases beginning 2020. This new system is voluntary until 2027 but has so far involved pledges from airlines operating in China and the US. The emissions will be offset by airlines funding forests and other carbon-reducing activities, which will cost up to 2% of revenues annually. Research is also being undertaken in Europe on the viability of using biofuels to displace jet fuel in airplanes, with a target of using 2.0mn tonnes of sustainable biofuels annually in the European civil aviation market by 2020. In meeting emission targets, airlines must increase efforts to lower their carbon footprints by engaging in better logistical planning and relying on clean energy where possible.

Conclusion

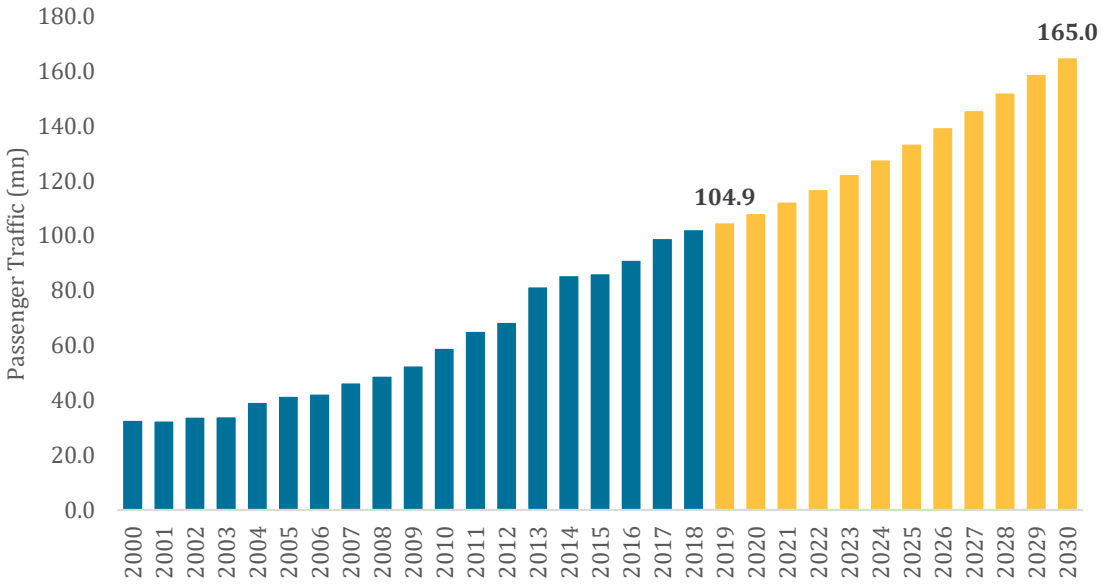
The trends mentioned above were drawn out from the anticipated key risks and opportunities facing the civil aviation sector between now until 2030. Whilst some of these such as trade wars and rising global flashpoints are more immediate in nature up to 2030, other trends such as advances in aircraft technology and reducing carbon emissions are expected to affect developments in the industry until 2030 and beyond. In either case, these trends provide an idea of how both the civil aviation sector and the world will change in the future.

Malaysia's Passenger Traffic Growth

Overall, the demand for air travel looks set to expand until 2030—globally, regionally, and for Malaysia. The International Air Transport Association (IATA) expects 7.2bn passengers to travel in 2030, compared to 4.1bn in 2017, at a compound annual growth rate (CAGR) of 3.7%. Comparatively, MAVCOM's provisional and unconstrained forecasts find that Malaysian passenger traffic will grow by a CAGR of 4.1% between 2019 and 2030, from 104.9mn to 165.0mn[17] (see Figure 5).

Available forecasts by the IATA indicate that countries within the Asia Pacific region such as China, India, Indonesia, and Thailand are expected to grow by 5.3%, 7.0%, 6.3%, and 4.2%, respectively in CAGR terms within the same period.

Figure 5: Air Passenger Traffic, Malaysia, 2000 – 2030F



Source: MAVCOM Analysis, MAHB, SATSSB

The forecasted passenger traffic growth (in CAGR terms) for Malaysia between 2019 and 2030 is slower than the CAGR growth reported between 2006 and 2019 of 7.2%. This forecast has both upside and downside risks. On the upside, an additional 1.0ppt in Malaysia GDP growth would increase our 2030 passenger traffic forecast by 2.6mn, while the forecasted traffic would decline by 2.6mn, if the growth in GDP was 1.0ppt less than expected, for 2030. This results in a passenger traffic forecast growth between 3.9% and 4.2% in CAGR terms.

Apart from the growing economy, passenger traffic will also be supported by population growth of 0.9% and 0.6% in ASEAN and the Asia Pacific countries (in CAGR terms), respectively. Malaysia's population will grow by 1.2% between 2018 and 2030, the fourth in ASEAN behind the Philippines, Cambodia, and Laos.

[17] See Appendix 5 for details of the long-term passenger traffic forecast.

Therefore, while the aviation sector contributes towards economic growth directly, its performance is also driven by the economic and demographic factors.

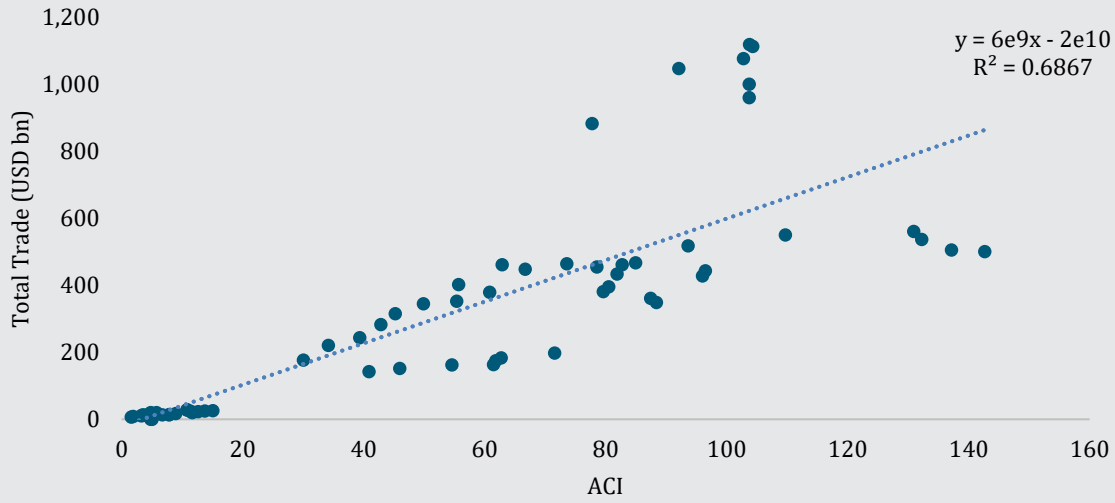
Air Connectivity

The link between civil aviation and tourism and trade is provided by air connectivity. Globally, an estimated 40% of tourists travel by air[18], while the World Bank (2013) has found, for instance, that stronger air connectivity is highly correlated with trade in GVCs. This is particularly relevant for value chains involving high-value components, such as that for the electrical and electronics (E&E) sector, in which travel times are a key production factor. Higher air connectivity reduces the costs of air transport and therefore enables a location to be more strongly connected to GVCs (see Box 2). Hence, while air cargo constitutes only 1% of global trade by volume, it consists of 35% of global trade values. For Malaysia, between 27% and 29% of its exports and imports are carried by air.

Box 2: Air Connectivity and Trade

There is a strong positive correlation between connectivity and trade, measured by the total imports and exports of a country as reported by the World Bank (see Figure 1). Connectivity is represented by the ACI, which measures both passenger and cargo connectivity, and indicates the ability of a country to connect to global air transport flows and measured using total scheduled seats, number of destinations, and size of airports served.

Figure 1: Total trade vs ACI, 2010 – 2016



Source, MAVCOM Analysis, World Bank

Air cargo services drive trade by enabling countries to join GVCs and move up to higher value-added activities. It is used extensively to transport high value-to-weight ratio goods, such as parts and components in the E&E and pharmaceutical sectors. It is also important for process-critical items where controlled environments and rapid movement from producer to consumer are necessary to ensure high-quality final products such as medical equipment. In the apparel sector, "fast fashion" retailers like H&M and Zara make extensive use of air cargo in their supply chains when time-to-market is critical for finished goods.[19]

[18] IATA (2017).
[19] Shepherd, Shinghal, and Raj (2016).

From the supply chain perspective, air cargo services help firms maintain low inventory levels which consequently reduce warehouse costs by moving goods quickly, reliably, and at a reasonable cost. Moreover, it supports the GVC's just-in-time approach to combining and assembling inputs via express shipment. The speed, reliability, and security of air cargo services are also beneficial in cases when surface transport is disrupted, for example due to natural or social factors. In terms of integrating and moving up the GVC, the availability of air cargo services is a significant factor for firms in deciding the viability of a new node in a global production network[20].

Maximizing Malaysia's potential passenger traffic growth, and therefore, increasing the sector's contribution towards economic development, requires an analysis of the factors supporting such growth. Primarily, the growth of air traffic is dependent on the economic rationale for air travel, namely tourism and trade. Hence, the current and future development of Malaysia's civil aviation sector must be closely interlinked with Malaysia's trade and tourism initiatives, i.e. the strengthening of the civil aviation-related economic base.

[20] Leinbach and Bowen (2004).

Air Passenger Connectivity

MAVCOM's rankings of air passenger connectivity[21] at the country- and airport-levels indicate the following:

- **Malaysia trails behind Thailand, Singapore, and Indonesia in terms of country-level connectivity**, which highlights the positive relationship between air connectivity and passenger size, as both Thailand and Indonesia have higher passenger traffic than Malaysia as at 2017 at 129.2mn and 111.0mn, respectively.

  However, when only the countries' main airports are considered, KUL leads over Soekarno-Hatta International Airport, Jakarta (CGK) in terms of connectivity at the airport-level and is only second to Changi Airport (SIN) in terms of being connected as an international hub (see Table 2). One of the main reasons for this juxtaposition is that while Malaysia's connectivity is concentrated at KUL (which serves more than three times the number of destinations as the second-largest airport, BKI), Indonesia's connectivity is spread across two airports, i.e. CGK and Ngurah Rai International Airport, Denpasar (DPS).

  These findings imply that at the country-level, air passenger connectivity is improved when more than one airport can act as international gateways into a country.

  Table 2: Summary of Air Connectivity at the Country, Airport, and International Hub Level for ASEAN Countries, 2018

Rank	Country-level	Airport-level	International hub
1.	Thailand	SIN	SIN
2.	Singapore	BKK	**KUL**
3.	Indonesia	**KUL**	BKK
4.	**Malaysia**	MNL	MNL
5.	Philippines	CGK	SGN
6.	Vietnam	SGN	BWN
7.	Cambodia	PNH	CGK
8.	Myanmar	RGN	PNH
9.	Laos	BWN	RGN
10.	Brunei	VTE	VTE

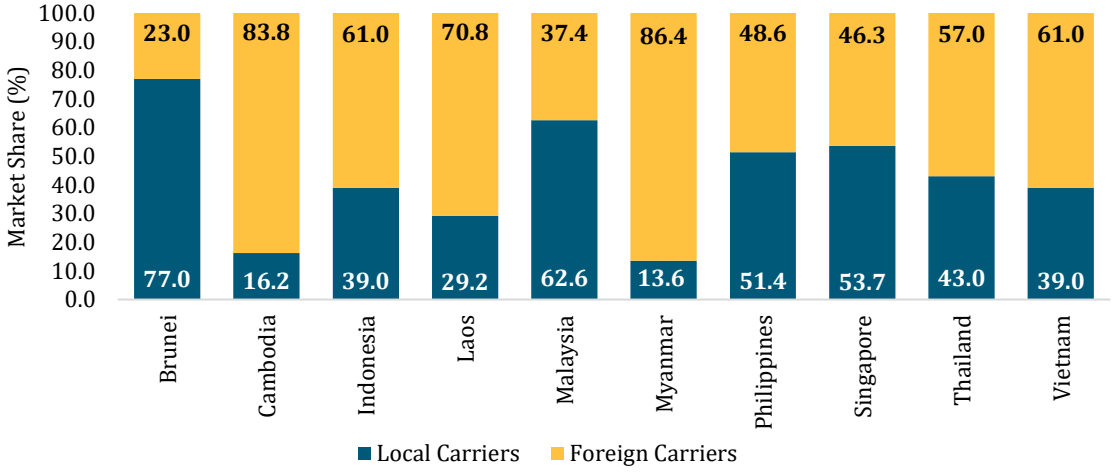
Source: MAVCOM Analysis, AirportIS

- On the other hand, it was also found that while all of SIN's hub traffic as at 2018 comprised passengers traveling to international destinations, 50% of KUL's hub traffic were domestic passengers travelling from other domestic airports such as PEN, LGK, and BKI, who were connecting to flights at KUL

[21] See MAVCOM Technical Paper on Defining and Measuring Air Connectivity (2018).

- Apart from population size, which directly affects passenger traffic size, air connectivity is also significantly influenced by the number of airlines flying into a country. This relationship between the number of carriers and connectivity is highlighted by the split in market share between local and foreign carriers in ASEAN Member States (see Figure 6)

Figure 6: Market Share Between Local and Foreign Carriers, 2017



Source: MAVCOM Analysis, AirportIS

Figure 6 highlights that countries with higher market shares for foreign carriers than Malaysia also led in terms of connectivity.[22] Furthermore, while Singapore, like Malaysia, had a market dominated by local carriers (53.7%, compared to 62.6%), the key difference is that Singapore's local carrier market was dominated by a full-service carrier (FSC, i.e. Singapore Airlines). On the other hand, Malaysia's market was dominated by a low-cost carrier (LCC), AirAsia Berhad (AirAsia), which had a domestic and international passenger share of 56.3% and 27.6%, respectively, in 2017.

In general, LCCs like AirAsia largely adopt a point-to-point model, in contrast to FSCs, which operate within a network of routes, either on their own, within an alliance or other types of joint ventures (JVs). This implies that a new service and/or higher frequency by an FSC increases connectivity more than such a development by an LCC.

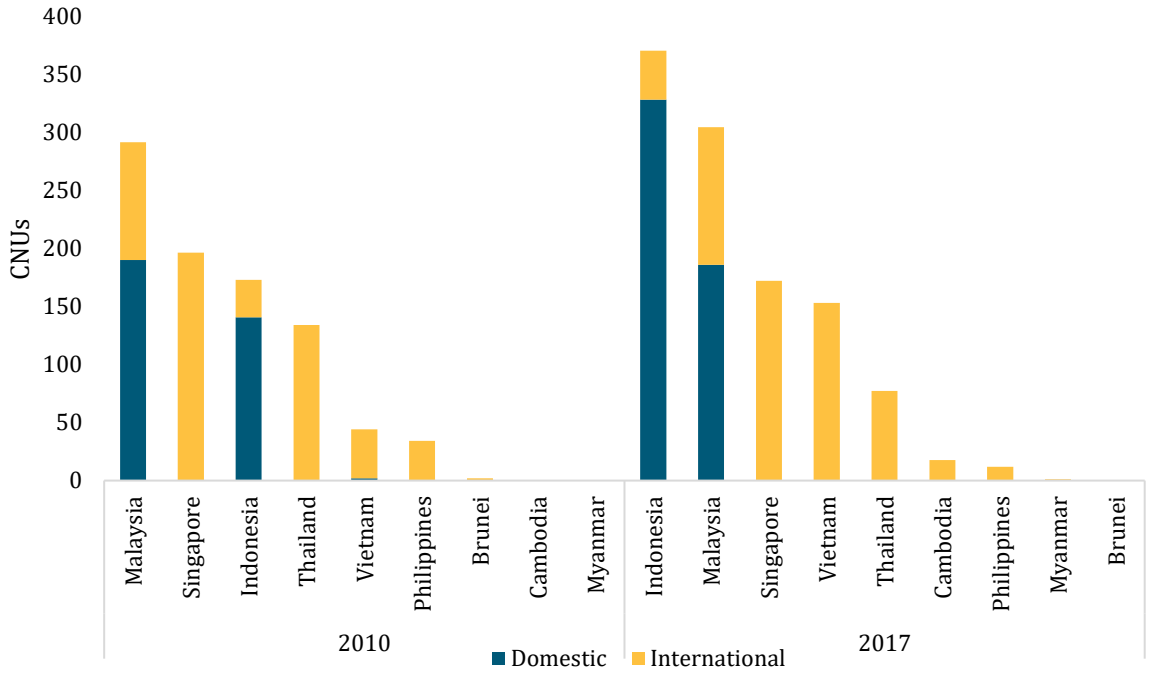
[22] Cambodia is the exception, as it has a relatively small number of local carriers, and a liberalized domestic scheduled services market.

Cargo Air Connectivity

MAVCOM's analysis of cargo connectivity found the following:[23]

- **In 2017, within ASEAN, cargo from Malaysia was connected to 15 countries via scheduled flights, lower than Singapore and Vietnam,** with each connected to 24 different countries. However, when measured by connectivity units[24] (CNUs), Malaysia's cargo connectivity was found to be second in ASEAN after Indonesia (see Figure 7). As Figure 7 also indicates, Malaysia's cargo connectivity was primarily driven by domestic cargo services. Moreover, around 55% of air cargo measured by CNUs comprised road feeder services (RFS), or flight trucks.

Figure 7: Domestic and International CNUs for ASEAN Member States, 2010 & 2017



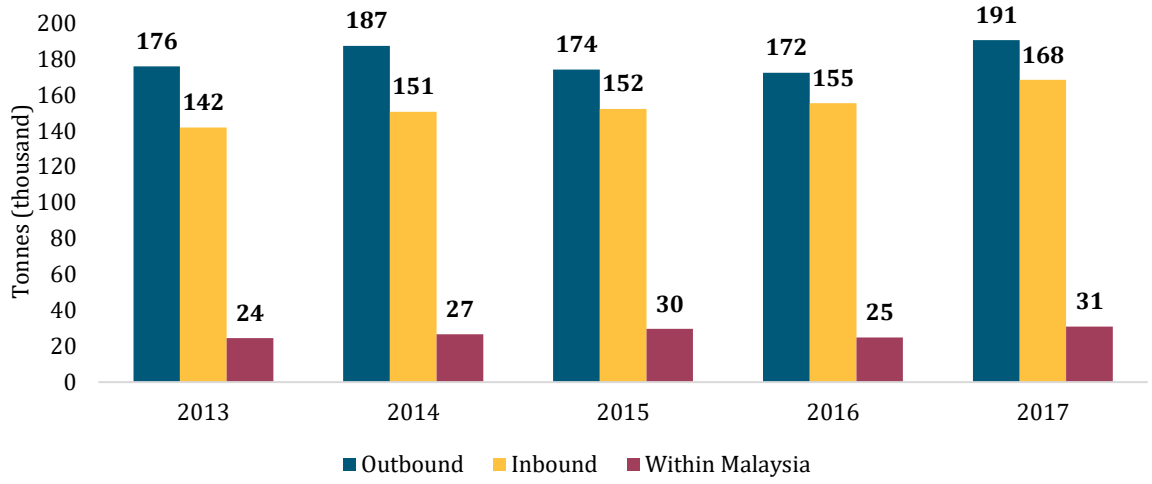
Source: MAVCOM Analysis, AirportIS

[23] See Appendix 6 for more details of the study.

[24] A measure that factors in the total transportation time (flight plus transfers), a hypothetical maximum transportation time offered by airlines, and non-stop flight time, as well as, the weekly frequencies of scheduled cargo flights.

- The CNU however, only measures air cargo transported by scheduled flights, whereas a large part of air cargo is transported via chartered or non-scheduled services. When cargo is measured from the demand side, i.e. in terms of freight tonne-kilometre (FTK), which measures both weight and distance transported, it was found that **Malaysian air cargo service providers transported more cargo internationally than domestically** (see Figure 8)

Figure 8: Total Weight Carried by Outbound, Inbound, and Within Malaysia, 2013 – 2017

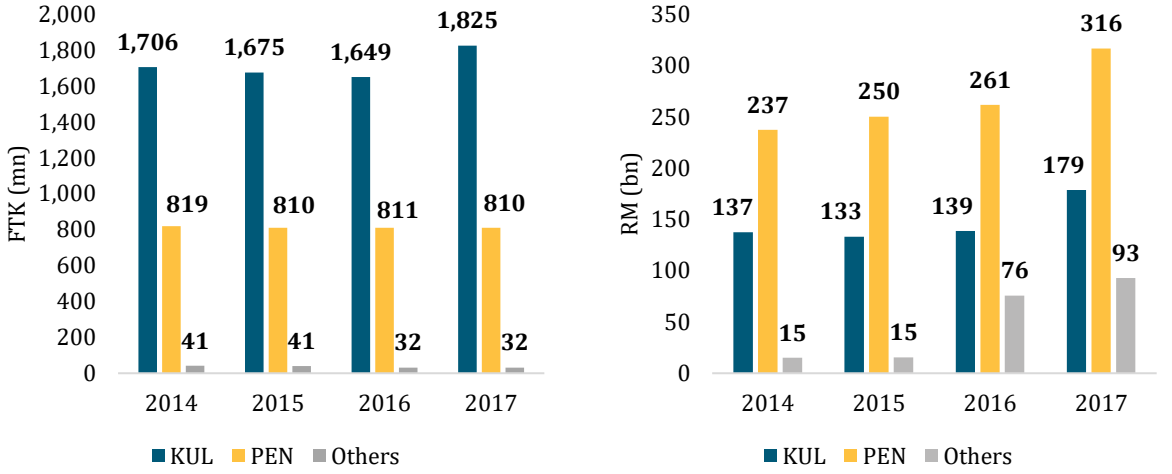


Source: MAVCOM Analysis, CargoIS

- Within the category of goods transported by air, Malaysia's top four products in terms of value are: electrical machinery and equipment, medical instruments and apparatus, precious stones and metals, and aircraft, spacecraft and parts. Of these, the last category grew the fastest, at a CAGR of 10.8% between 2010 and 2017

- Malaysia's top two cargo processing airports are KUL and PEN, which handled 61.4% and 36.5% of Malaysia's total cargo by weight, respectively. However, in terms of value, cargo flown in and out of PEN was around 1.8x of KUL (RM316bn and RM179bn, respectively, in 2017, Figure 9). This could be explained by PEN's location within the Bayan Lepas Free Trade Zone, which houses the E&E-based multinational corporations, such as Intel, AMD, and Altera, all of whom export high-value parts, components, and finished products

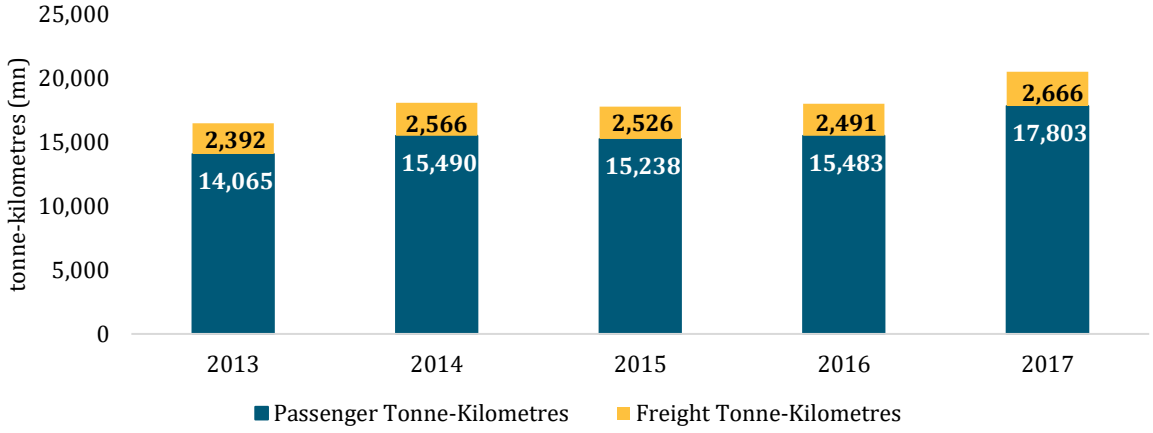
Figure 9: Total Air Cargo by FTK (Left) and Value (Right) for KUL and PEN, 2014 – 2017



Source: MAVCOM Analysis, CargoIS, DOS

- Nonetheless, while air cargo services are strongly correlated with the performance of international trade, the cargo sub-sector plays a minor role compared to the contribution of the passenger sub-sector**. When passenger traffic is measured by passenger tonne kilometres (PTKs), cargo tonnage constituted approximately 13% of the 20.6bn international tonne kilometres transported to and from Malaysian airports in 2017 (see Figure 10). Growth in the cargo sub-segment between 2013 and 2017 was slower than that of the passenger sub-segment, at 2.8% compared to 6.1% in CAGR terms**

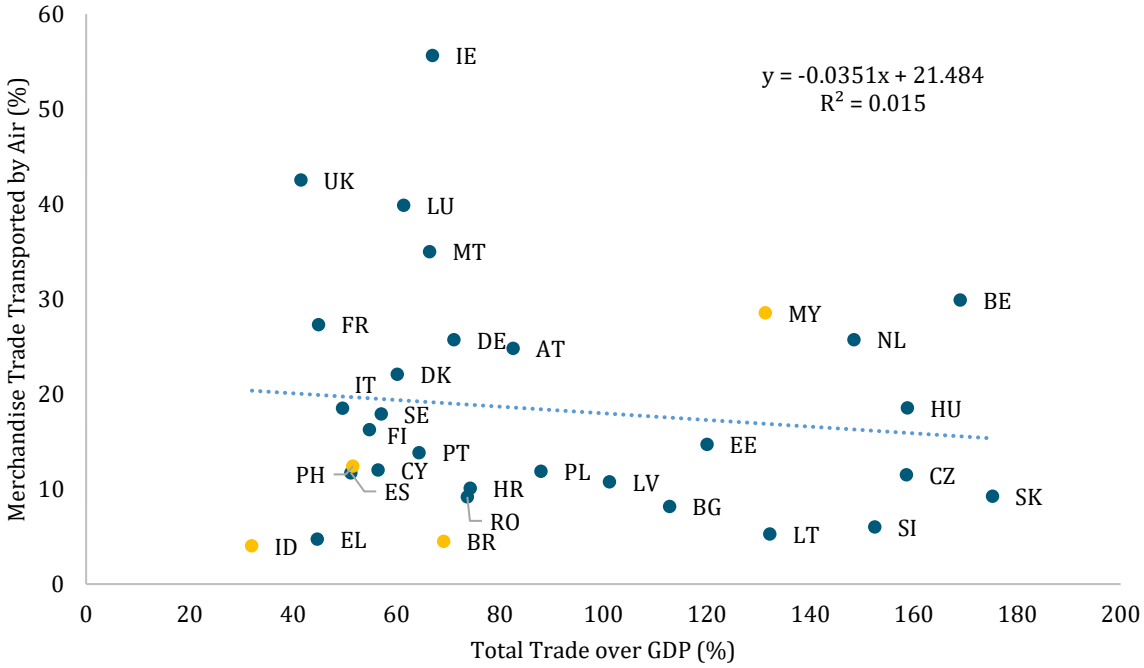
Figure 10: International PTKs and FTKs Handled by Malaysian Airports, 2013 – 2017



Source: AirportIS, CargoIS

- **Leveraging on the strong correlation between air connectivity and trade goes beyond developing air cargo. Notwithstanding the strong correlation between air connectivity—both passenger and cargo—and international trade, there does not seem to be a significant relationship between the percentage of goods transported as air cargo and a country's contribution of trade to GDP (see Figure 11)**

Figure 11: Trade Transported by Air vs. Total Trade over GDP, 2018



Source: Eurostat, National Statistical Offices of Brunei, Indonesia, Malaysia and the Philippines, World Bank

The weak correlation between goods transported as air cargo and the size of trade relative to a country's GDP, combined with the importance of connectivity to trade, indicates that air cargo performance and air connectivity are necessary but insufficient conditions for a country's international trade performance and economic growth. Structural and macroeconomic factors, such as the efficiency of regulatory processes and strong investment flows, possibly play a more significant role. The World Bank for instance, has found that providing 24/7 automated customs processing could lead to a country's trade growing by 4.4% year-on-year (YoY), over time.[25]

[25] Frontier Economics (2015).

As a small open economy, Malaysia has room to improve on its regulatory trade processes and procedures. Within ASEAN, the country placed second to Singapore in terms of ease of trading in the 2018 World Bank Doing Business ranking, which measures the cost and efficiency of trading across borders based on scores for border and documentary compliance procedures (see Table 3). While it takes 12 hours to process exports out of Singapore, processing exports out of Malaysia takes more than triple the time—38 hours. Such a gap in processing efficiency could prove detrimental to Malaysia's competitiveness as a trading centre.

Table 3: World Bank Ease of Trading Ranking, 2018

Country	Rank	Border Compliance				Documentary Compliance			
		Export		Import		Export		Import	
		Time (Hours)	Cost (USD)	Time (Hours)	Cost (USD)	Time (Hours)	Cost (USD)	Time (Hours)	Cost (USD)
Singapore	45	10	335	33	220	2	37	3	40
Malaysia	**48**	**28**	**213**	**36**	**213**	**10**	**35**	**7**	**60**
Thailand	59	44	223	50	233	11	97	4	43
Laos	76	9	140	11	224	60	235	60	115
Vietnam	100	55	290	56	373	50	139	76	183
Philippines	104	42	456	120	580	36	53	96	50
Cambodia	115	48	375	8	240	132	100	132	120
Indonesia	116	53	254	99	383	61	139	106	164
Brunei	149	117	340	48	395	155	90	132	50
Myanmar	168	142	432	230	457	144	140	48	210

Source: World Bank

Hence, tapping into the virtuous cycle where air connectivity, international trade, and economic growth reinforce each other requires reforms to Malaysia's trade facilitation and behind-the-border measures. The commitment to undertake the bulk of these reforms is already embedded within the LTFMP.

Airports

As mentioned, determining the position of Malaysia's civil aviation sector entails reviewing the role of airports as enablers towards maximizing air connectivity. While this involves determining the airport industry's commercial positioning, at a more fundamental level, it also requires a review of the industry's structure.

Therefore, MAVCOM's review of the Malaysian airports industry structure[26] found the following issues:

- **The service levels for Malaysia's airports have deteriorated.** KUL for instance, had dropped 10 spots in the Skytrax World Airport Rankings between 2017 and 2018
- **Airport developments face funding constraints.** The deterioration in airport service levels is partly driven by constraints to fund investments in airports infrastructure. While MAHB's capacity to raise funding for development capex is restricted by the terms of its Operating Agreement (OA) with the GoM, the private operator of Senai International Airport (JHB), SATSSB, is in the process of requesting funding from the GoM for the further implementation of its Master Plan
- **A near-monopoly airports industry structure has not resulted in relatively high returns.** MAHB lags behind other airports network operators in terms of revenue per passenger
- **Malaysia's airports network is haphazard.** The absence of a comprehensive NASP has meant that the development of Malaysia's airports network is uncoordinated not only within air transport, but also with other modes of transport as well. In addition, the development and maintenance of PSO-related airports and infrastructure have not been determined

Meanwhile, the following are lessons learnt from case studies of other airport systems:[27]

- **Individual airports and airport networks structures can be financially sustainable and maintain satisfactory performance levels**
- **Corporate governance and commercialization are critical success factors, particularly in the absence of competition.** These include:
    - Airport operators holding total responsibility for capital and operational expenditure
    - Freedom from political interference at the decision-making or operational level, especially for airports with full or partial government ownership
    - Service level requirements are built into the airport charges framework, where applicable
- **Most airports do not have dedicated terminals for LCCs, opting for multi-use facilities.** This is mainly due to the dynamic nature of the airlines industry, whereby airports do not want to commit permanent infrastructure should airlines' business models change
- **Airport networks operators (e.g. Aena in Spain) may be relatively less responsive to airlines' and passengers' needs due to a lack of competition**

[26] Refer to MAVCOM Position Paper on Malaysia's Airports Industry Structure (December 2019).

[27] Refer to MAVCOM Position Paper on Malaysia's Airports Industry Structure (December 2019).

Finally, a recent audit on GHL holders in Malaysia by MAVCOM found the following weaknesses:

- **Firms operating without licence or not complying with licence conditions.** The operations of 11 ground-handling service providers (GHSPs) are not in compliance with their respective GHL or conditional approval (CAs) approved by the Commission. In addition, at least one unauthorized GHSP has been providing services since 1998 without an approval from the MOT (before March 2016, when MAVCOM was established) or MAVCOM (after March 2016)
- **Low productivity** due to low levels of investment in equipment and high operational staff turnover
- **Lack of monitoring and supervision** of GHSPs by MAHB

Lack of competition, especially in the catering sub-sector, where the market is dominated by Brahim's SATS Food Services Sdn. Bhd (Brahim's SATS), which controls 79.3% of market share (as of 2018) Conversations between MAVCOM and foreign airlines have indicated that apart from incentives and services offered by airports, the service quality of support services such as ground-handling is also a key driver for the route decisions of these airlines. Hence, improvements in the service quality of ground-handling services are imperative—especially at Malaysia's gateway hub and secondary hub airports.

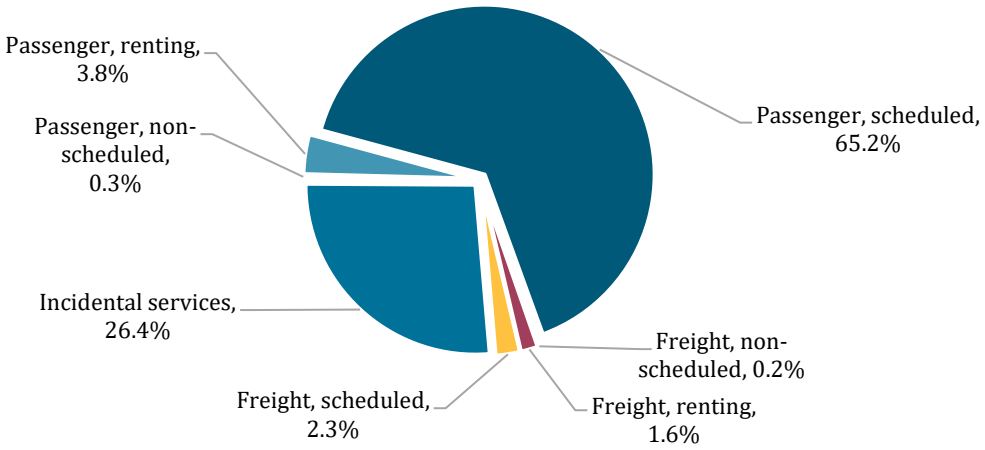
Therefore, a long-term National Aviation Master Plan[28] needs to address these structural issues in order to allow for the commercial and competitive operations of airports.

[28] A National Aviation Master Plan would comprise the Economic Master Plan for the Malaysian Civil Aviation Sector, Technical and Safety Master Plan for the Malaysian Civil Aviation Sector, and the National Airports Master Plan.

Human Capital

The development of the Malaysian civil aviation sector into one that can ably support the country's economic growth into a developed nation requires a strong human capital base. In 2014, the aviation sector was estimated to have employed 43,902 full-time workers, equivalent to 0.3% of total employed persons for the year.[29] Of these, scheduled passenger air transport—Air Service Licence holders (ASL holders)—are the largest employers, followed by services incidental to air transportation, which include the operation of terminals (airports) (see Figure 12). In addition, while total employee compensation comprised 34.3% of total GDP in 2014 (2015: 36.4%), total compensation in the air transport sector comprised 59.2% of the total GDP produced in that sector (2015: 62.0%).

Figure 12: The Malaysian Civil Aviation Sector Workforce, 2014



Source: DOS

However, in terms of the human capital development in the aviation sector, there are several foundational challenges which need to be addressed in order to establish a human capital base that is sufficiently strong to support the future development of the sector:

- **Data-driven action plans (talent analytics) cannot be undertaken** due to a lack of comprehensive and accurate data on the current workforce as the highest granularity of data is necessary for any useful insights to be shared within the sector
- **A lack of coordination and standardization in industry qualifications and certifications has led to a mismatch of talent supply and demand**, especially for high-skilled roles where specialized skills are not transferrable between different roles
- **Globally-accepted standards of quality assurances on training and certifications—which are readily available—are not uniformly applied across service providers,** which causes delay in the execution of the training modules and incurs high sunk cost

[29] Latest available figures, DOS.

- **Career-branding in the aviation sector is only targeted to the front-end roles such as pilots and flight attendants, with less emphasis given to other professional and/or technical roles** such as route planners, revenue management executives, airline flight instructors, and avionics technicians. There are also many individuals performing specific tasks in ensuring that flights are safe, including those with operational roles such as baggage-handlers and ticketing agents
- **Lack of funds and common facilities which negatively affect training for smaller firms.** This can be alleviated by the establishment of permanent financial facilities i.e. a pool fund for them to reinvest in training their succession pool

Technological advancements such as automation, machine learning, and artificial intelligence present significant challenges to sub-sectors that are relatively labour-intensive. While technological advancements can improve aviation sector processes and efficiency significantly, developments such as automation and artificial intelligence also threaten to displace a human workforce in an extremely disruptive way. Despite this very real possibility, the impact of these possible disruptions has not been well-defined and needs to be studied in more detail.

Institutional Framework

Much like the rest of the economy, the development of Malaysia's civil aviation sector is underpinned by the strength of its institutional framework. The framework can be defined as the system of formal organizational structures, policies, and laws and regulations which govern the way in which the sector's stakeholders—policymakers, regulators, legislators, industry players, and consumers—operate and interact with each other.

Regulatory and Legal Framework of the Malaysian Civil Aviation Sector

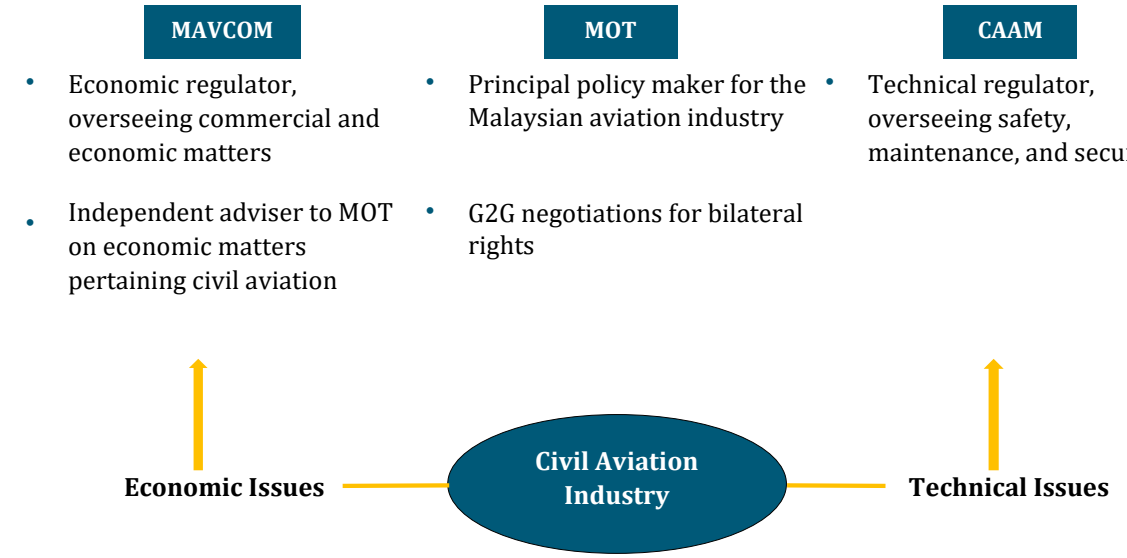
At present, the aviation services sector in Malaysia is mainly governed by the MOT, CAAM, and MAVCOM. The MOT is the principal policy maker for the aviation industry and represents Malaysia for any inter-governmental relations regarding the civil aviation industry, such as in negotiations for ASAs.

CAAM is an aviation agency under the MOT with regulatory functions over technical aviation matters, particularly enforcement of safety, maintenance, and security standards.

MAVCOM, established on 1 March 2016 under Act 771, is an independent economic regulator for the civil aviation industry in Malaysia and advisor to the MOT on economic matters pertaining to civil aviation. As an economic regulator, MAVCOM has powers over commercial licensing and permits, consumer protection, competition, slot allocation, ATRs, and dispute settlement in the civil aviation industry.

Figure 13 illustrates the roles of the three organizations.

Figure 13: Roles and Functions of the MOT, CAAM, and MAVCOM



Source: MAVCOM

Civil aviation in Malaysia is governed by legislation covering different aspects of the industry, including economic regulation, technical regulation, implementation of international conventions, and the GoM's role in the civil aviation industry. Table 4 summarizes the principal legislations governing civil aviation in Malaysia:

Table 4: Principal Legislation Governing Civil Aviation in Malaysia

Legislation	Authority	Scope
Technical Regulation		
Civil Aviation Act 1969	CAAM	Technical regulation including: • Safety and security regulation of the civil aviation • Aerodrome operation regulation • Air navigation services and facilities • Search and rescue services • Investigation of aircraft accidents
Civil Aviation Authority of Malaysia Act 2017	CAAM	Establishment of CAAM
Economic Regulation		
Malaysian Aviation Commission Act 2015	MAVCOM	Economic regulation of aviation services, including: • Service licenses and permits • Aviation services charges • Sectoral competition law authority • ATRs • Slot allocation • PSOs • Consumer protection • Aviation disputes
Implementation of International Conventions		
Aviation Offences Act 1984	Attorney General's Chambers and the MOT	To give effect to: • The Convention on Offences and Certain Other Acts Committed on Board Aircraft • The Convention for the Suppression of Unlawful Seizure of Aircraft • The Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation • The Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation

Legislation	Authority	Scope
Carriage by Air Act 1974	The MOT and MAVCOM	To give effect to: • The Warsaw Convention 1955 and its Supplementary Convention 1961 • The Montreal Protocol No. 4 of 1975 to amend the Warsaw Convention • The Montreal Convention 1999
International Interests in Mobile Equipment (Aircraft) Act 2006	The MOT and CAAM	To give effect to the Convention on International Interests in Mobile Equipment and the Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Aircraft Equipment.

Source: MAVCOM

Role of the Government

Notwithstanding the institutional responsibilities prescribed by this regulatory and legal framework, in reality, the GoM plays multiple and overlapping roles in relation to the country's civil aviation sector, as illustrated in Table 5.

Table 5: Roles and Responsibilities of the GoM in Civil Aviation Sub-Sectors

Aviation sub-sector	Roles and responsibilities
Airports	• Policymaker (MOT and MOF) • Regulator (via MAVCOM and CAAM) • Bearer of golden share in MAHB (MOF) with Board representation (MOT) • Board representation in SATSSB • Asset-owner (GoM) • Responsible for development capex for MAHB • Shareholder in MAHB (MOF, via Khazanah Nasional Berhad (KNB)
Airlines	• Policymaker (MOT and MOF) • Owner of company, (Malaysia Aviation Group Berhad (MAG)—MOF, via KNB) • Shareholder (MOF, via Government-linked Investment Companies (GLICs)—see Appendix 6 for details)
ANSP	• Policymaker (MOT) • Regulator (CAAM) • Operator (CAAM)

Source: MAVCOM

These overlaps may then give rise to ad-hoc, contradictory, and inconsistent policy directions and regulations. For instance, in its 2019 Budget, the MOF announced two measures relating to the aviation sector—the development of an Airport Real Estate Investment Trust (REIT) and the imposition of a Departure Levy, which would have adverse implications on the performance of the aviation sector. The REIT may hinder efforts to grant MAHB with more responsibility over its capex and therefore, to operate on a more commercial basis. On the other hand, the Departure Levy is misaligned with ICAO's Policy on Charges for Airports and Air Navigation Services, which recommends that States should permit the imposition of charges only for services and functions which are provided for, directly and indirectly related to the civil aviation operations.[30]

In addition, while the MOT's representation on the Board of Directors of MAHB may have been a legacy of the airport operator's origins as a government agency, and reflective of the GoM's perception of airports as a strategic asset, it may also give rise to conflicts of interest.

Commercial Environment

The lynchpin for the development of the Malaysian civil aviation sector over the next decade is the continuous maintenance of a commercial environment where competitive processes and commercial activities are safeguarded by facilitative regulations without sacrificing consumer welfare. There are three illustrative areas where the upholding of a fair and competitive commercial environment manifests itself in the Malaysian civil aviation sector:

- Liberalization in terms of market and ownership structures
- Safeguarding consumer welfare
- The administration of PSOs

E. Liberalization

As with many other sectors in the Malaysian economy and the aviation services sector in many other countries, the Malaysian civil aviation sector too has undergone significant liberalization.[31] This was achieved via the following:

- **Negotiating and agreeing for greater ATRs and other liberalization measures:** Malaysia has entered into 106 bilateral ASAs with other countries as of 2018. These ASAs promote and increase air access into and from Malaysia as Parties commit to more liberal ATRs and removal of constraints and barriers for routes, capacity, and pricing, among others
- **Introducing and developing competition process in the market:** Malaysia has allowed and encouraged more players to enter and operate in the various segments of the aviation services value chain. For example, current carriers operating in the domestic market include Malaysia Airlines Berhad (MAB), FlyfireFly Sdn. Bhd. (Firefly), MASwings Sdn. Bhd. (MASwings), AirAsia, and Malindo Airways Sdn. Bhd. (Malindo), while in the past, there were Pelangi Airways Sdn. Bhd. and Berjaya Air Sdn. Bhd. In the airport management market, airport operators include MAHB, SATSSB, and Tanjung Manis Development Sdn. Bhd. Finally, in the ground handling markets, players include POS Aviation Sdn. Bhd. (formerly known as KL Aviation Services Sdn. Bhd.), AeroHandlers Sdn. Bhd., and Brahim's SATS

[30] Refer to MAVCOM's commentary on aviation-related measures in the 2019 Budget.
[31] Refer to MAVCOM Position Paper on Sequencing Liberalization for the Aviation Services Sector (July 2019).

- **Promoting both private and foreign ownership in industry players operating in the various parts of the aviation services value chain:** For example, both AirAsia and Malindo are privately-owned airlines. They, along with MAHB, also have foreign ownership in the form of institutional investors. Additionally, MAHB and AirAsia are listed on Bursa Malaysia

Market liberalization has benefited consumers who now enjoy more choices through increased connectivity and lower airfares:

- Passenger traffic has increased from 65.3mn in 2011 to 102.5mn in 2018
- As of 2018, Malaysia was connected to 128 international destinations, ranking fourth in ASEAN after Thailand, Singapore, and Indonesia
- The average airfares for Malaysian carriers had been on the downward trend for both domestic and international airfares from 2011 to 2018. The average domestic airfares decreased from RM245 in 1Q11 to RM215 in 4Q18 while the average international airfares decreased from RM570 to RM467 for the same period.

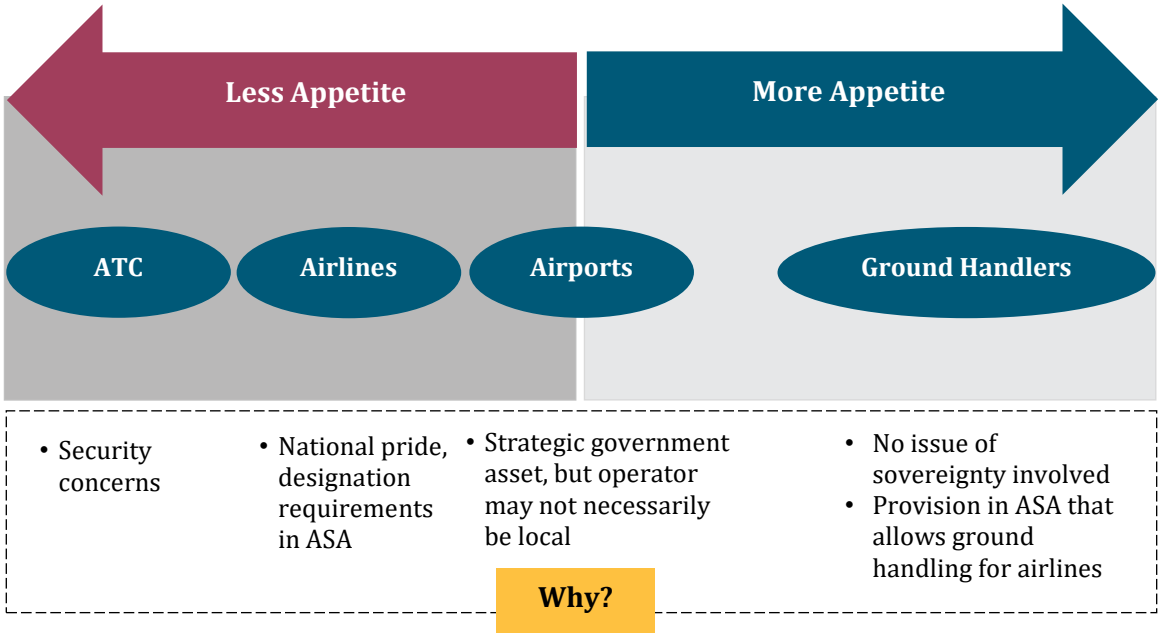
Despite these achievements, more can and needs to be done to ensure that the benefits of market liberalization continue and are sustainable for the long term. The issues and challenges that have been identified with regards to the liberalization of the sector include:

- Issues with mixed ownership structures—tensions may arise due to:
    - Perceived preferential treatment by the GoM for State-Owned Enterprises (SOEs): in the context of competition law, any preferential treatment by the GoM creates an uneven playing field which disadvantages other companies in the market
    - Managing the balance between commercial and non-commercial objectives: unlike for non-SOEs, SOEs may have the additional burden of having to fulfil non-commercial objectives despite having to ensure their profitability, and therefore, having to bear the high costs for aviation services to achieve the social benefits expected by the GoM and the public
    - Managing tensions between the need to meet international obligations in ASAs and to subsidize: the currently negotiated ASEAN-EU Comprehensive Air Transport Agreement (ASEAN-EU CATA) has incorporated comprehensive and deep obligations on competition, including rules on state aid or subsidies. Would any of the existing subsidies in the aviation services sector be inconsistent with these obligations?
    - Funding of aviation-related activities and infrastructure by the GoM and taxpayers versus by private investors: the GoM may have difficulties in financing aviation-related activities and infrastructure when it also needs to reduce its fiscal deficit and debt. Should the current model of privatization be revised? Would it be appropriate to move from the current public-private partnership (PPP) model for asset ownership/operation to purely private participation in asset ownership/operation in the future?

- Keeping pace with the latest development of liberalization in the international aviation sector: historically, flag carriers were owned by their governments, but this has gradually changed with more private investment into airlines. As a consequence, the concept of a 'flag carrier' is becoming increasingly diluted and indeed, the US has no flag carriers. In Malaysia, AirAsia flies more domestic and international routes, and carries more passengers than any other Malaysian carrier. Is the concept of a 'flag carrier', owned by the GoM, still relevant in the Malaysian context? Issues with common ownership—while common ownership has its benefits in terms of allowing for cross-subsidization and leveraging on economies of scale, it could also lead to negative implications should inefficient companies within a group/network be subsidized, and if companies are incentivized to undertake anti-competitive conduct

- Outdated regulatory instruments still in force to regulate the sector—despite the slew of regulatory instruments available for the GoM to ensure that the civil aviation sector acts in accordance with national objectives, several outdated practises have been retained, with the most intrusive being the State ownership of assets and companies in the sector. This still prevails despite the GoM undertaking the privatization programme in the 1980s and the existence of a complete suite of regulations in governing all aspects of the civil aviation sector—technical, safety, and security regulations implemented by CAAM and economic regulations implemented by MAVCOM
- Different levels of appetite for liberalization of the key sub-sectors in the aviation services market—despite the sector liberalization having been in progress since the 1980s, the GoM still has different levels of appetite for liberalization of the key sub-sectors in the aviation services markets, as illustrated in Figure 14

Figure 14: Differing Appetite for Liberalization in the Aviation Industry



Source: MAVCOM

If the appetite for liberalization could be illustrated in a spectrum, with its far left representing no or the least appetite for liberalization and its far right representing the highest level of appetite for liberalization, then the air traffic control (ATC) or the air navigation service provider (ANSP) sub-sector would be situated at the far left while the ground-handlers sub-sector is at the far right of the spectrum. The GoM is reluctant to liberalize the ANSP sub-sector in view of security and safety concerns. Meanwhile, the GoM is more open to liberalizing the ground-handling sub-sector in terms of ownership, that is, both for private ownership by local investors, as well as, by foreign investors. Already this is evidenced by the comparatively large number of ground-handlers operating in the Malaysian airports and some being co-owned by foreign firms, such as Brahim's SATS and SATS Ground Team Red Holdings Sdn. Bhd (SATS GTR).

However, the GoM is less open to airlines being more liberalized in terms of ownership i.e. the flag carrier being owned by a private investor as was the situation in the past or wholly-/majority-owned by foreign investors as done by Lufthansa. Interestingly, the GoM seems more neutral for airports to be more liberalized, which is probably due to the already relatively liberalized structure of airports in Malaysia via the PPP arrangements—concession agreements (CAGs).

F. Safeguarding consumer welfare

The competitive performance of aviation services firms and the economic sustainability of the industry must be achieved without sacrificing consumer welfare. Hence, MAVCOM has been empowered to ensure the protection of passengers through section 17(1)(*b*) of Act 771. In this regard, MAVCOM had established the following:

- Malaysian Aviation Consumer Protection Code 2016 (MACPC)
- QOS Framework for airports

In addition, MAVCOM has recently begun monitoring fares for selected routes during certain "peak" periods that is, festive seasons and school holidays.

Malaysian Aviation Consumer Protection Code 2016

The MACPC, which was gazetted in July 2016, is adapted from international guidelines such as the 1999 Montreal Convention, as well as, the ICAO Core Principles on Consumer Protection. It sets minimum service levels and standards which will need to be complied by aviation services providers. These include provisions for resolving consumer complaints, compensation and care for flight delays and cancellations, as well as, more transparency and clearer guidance on consumer rights and how to exercise them. The MACPC is supported by the establishment of a Consumer Management System to manage consumer complaints escalated to MAVCOM.[32]

Quality of Service Framework

The QOS Framework links service level targets with financial penalties for airports operations, in order to enhance passenger experience and airlines' operational efficiency in airports. The framework was developed by taking into consideration international benchmarks and extensive consultations with industry players. The framework imposes financial penalties of up to 5.0% of the airport operator's regulated aeronautical revenue.

[32] The MACPC was subsequently amended in May 2019.

The QOS Framework comprises service quality categories with multiple service elements which will be measured by MAVCOM to determine the performance of service at a particular airport. These categories are:

- Passenger comfort and facilities
- Operator and staff facilities
- Queuing times
- Passenger and baggage flows

See Appendix 7 for details on the QOS Framework.

Monitoring of air fares

MAVCOM's current price monitoring efforts provide an example of how the regulator can balance the commercial and competitive interests of aviation services providers—in this case, airlines—with consumer welfare. Arising from public complaints on the high domestic airfares during the festive seasons and school holidays, MAVCOM had undertaken a study on the pricing patterns of airfares for domestic flights during these peak seasons. The results of the study had been published in the MAVCOM Technical Paper on Airfares for Domestic Flights During Peak Seasons in August 2018.

The study found evidence of airfare increases during some of the peak seasons, regardless of the market concentration in those routes. However, the study also found that heavy-handed price regulation could have detrimental unintended consequences, such as price ceilings leading to an increase in average airfares and decreasing competition.

MAVCOM is implementing the following 'soft-touch' regulatory measures to preserve the commercial and competitive nature of the domestic scheduled services market, while simultaneously ensuring that consumers overall are not unduly disadvantaged:

- Compulsory filing of airfares for selected routes during the peak seasons for monitoring purposes
- Encouraging more airlines to operate on monopoly routes, or routes with high demand or no alternative modes of transport
- Continuous monitoring of domestic airfares for peak seasons

G. Public Service Obligations

Currently, the sole example of PSO within the sector is the RAS programme which provides subsidized air connectivity (for passengers and freight) in Sabah and Sarawak. Prior to the establishment of MAVCOM, the RAS programme was governed through a contract between the GoM and the current RAS operator, MASwings.

The RAS routes are defined as follows:

- Routes serving regions which are remote and/or sparsely populated
- Routes serving regions faced with significant accessibility issues arising from geographical peripherality or lack of adequate surface transport alternatives
- Routes which airlines would not serve if only commercial interests were considered

MAVCOM performed a review of the existing RAS regime as part of its advisory role to the MOT. The review resulted in rationalized routes, as well as, reformulation of the subsidy which was linked to agreed key performance indicators (KPIs). The proposed regime also allows the GoM to embed an element of risk and reward into the payment of subsidies to MASwings. Hence, the proposed PSO mechanism introduces commercial and quantitative considerations and performance-based measurements which were absent in the previous system.

The key challenge for the implementation of the RAS programme is that the definition of PSO only covers the carriage of passengers and freight by air but excludes provisions for aerodromes, that is, airports and short take-off and landing airports (STOLports). Therefore, funding for RAS-related infrastructure, including those for runways and ATCs, is not subsidized by the GoM, despite not being commercially viable. This is a gap which the Proposed EMP will address as part of the reform of the airports industry structure.

See Appendix 8 for additional details of MAVCOM's review of the RAS programme.

SECTION 3: THE MALAYSIAN CIVIL AVIATION SECTOR TOWARDS 2030 – STRATEGIC POSITIONING

Given the baselines and precepts for the sector outlined in the previous sections, the following stylized facts are observed:

- The two main constraints for the sector, which prevent it from maximizing its contribution to Malaysia's economic growth, are low connectivity and sub-optimal airports
- Air connectivity and the strength of economic activity—particularly tourism and international trade—are mutually reinforcing. While air connectivity is strongly linked to international trade in particular, especially in terms of a country's ability to participate in the GVCs, it is also very dependent on the strength of a country's economic base, as airlines and cargo operators choose to operate in countries where there is a high demand for their services
- Lessons from airports around the world indicate that airports' financial performance and service delivery are correlated with their ability to operate on a purely commercial basis, with minimal to no government interference, regardless of their ownership structure. Indeed, this applies to all segments of the sector, including airlines and ground-handling
- Pursuing growth objectives for the sector should not be at the expense of consumer welfare, which needs to be safeguarded in terms of consumer protection measures, as well as, initiatives to ensure high standards of service delivery

A Liberalized and Competitive Aviation Sector

Based on the observation that Malaysia, in particular KUL, has very strong hub connectivity, it would seem that the most optimal strategy would be to focus on strengthening FSCs at the expense of LCCs growth, and by extension, focusing on the development of a strong hub-and-spoke network.

However, it should be noted that the airlines sector is very dynamic. Already business models are merging, with LCCs like EasyJet providing premium services, while traditional FSCs like British Airways are beginning to adopt pay-per-service, such as for food purchases on certain routes. Also, in 2013, Norwegian Air, an LCC, commenced long-haul operations. On the other hand, aviation experts are forecasting that secondary hubs will develop in smaller towns, which may portend the continuing growth of LCCs driven by point-to-point traffic.

Finally, the relationship between air connectivity and airlines' business models are also affected by technology. The development of more powerful jet engines such as that used in the Boeing 787-9 Dreamliner has enabled ultra-long-haul flights, such as that between UK and Australia, a journey which previously required at least one transit. While previously such routes contributed to the rise of megahubs such as SIN and Dubai Airport (DXB), the rise of ultra-long-haul flights poses challenges for the continued growth of these hubs.

Given its dynamism, the most optimal strategy for the development of Malaysia's civil aviation sector is one which safeguards the continuing commercial operation of the airlines sector, while also ensuring that the country's airports are sufficiently competitive to attract as many airlines and routes as possible. This needs to be achieved without sacrificing consumer welfare, service levels, and financial resilience.

Therefore, rather than pursuing a strong hub-and-spoke strategy, where KUL for instance, is designated a "master air hub" while other airports are deemed to feed into KUL, we propose that the airports network in Malaysia should be driven by commercial considerations. The overarching vision is for airports to compete for airlines and passengers based on the following driving factors—financial efficiency and service delivery.

This strategy may even impact the way that airport developments relate to air freight. KUL for instance, may focus on establishing itself as a belly-cargo hub, in line with the development of the Digital Free Trade Zone, while PEN may be able to overcome its current capacity constraints to leverage its position as the air cargo hub for the Penang E&E sector. Again, such decisions should be based solely on the commercial considerations of each airport. This requires a shift from the concepts of KUL as a "master air hub" and PEN as a "regional hub" as outlined in the LTFMP and 11MP, respectively.

Market liberalization is perhaps a more important consideration for the airlines and ground-handlers. For airlines, liberalization may not only be in terms of ownership requirements—which may take a longer time to implement—but also of ATRs or freedoms of the air. In this case, liberalization will enable increased participation of airlines, which has a direct positive impact on air connectivity, as well as, the potential to provide players with the opportunity to improve on service delivery and/or airfare offerings due to increased competition.

The overriding strategic objective for the sector, therefore, is to maximize Malaysia's air connectivity by attracting as many airlines to operate out of Malaysia as possible, coordinated with efforts to strengthen the country's tourism and trade sectors. This objective is achieved through increasing market liberalization for all aviation sub-sectors, and hence, enhancing their competitiveness.

Enabling Factors

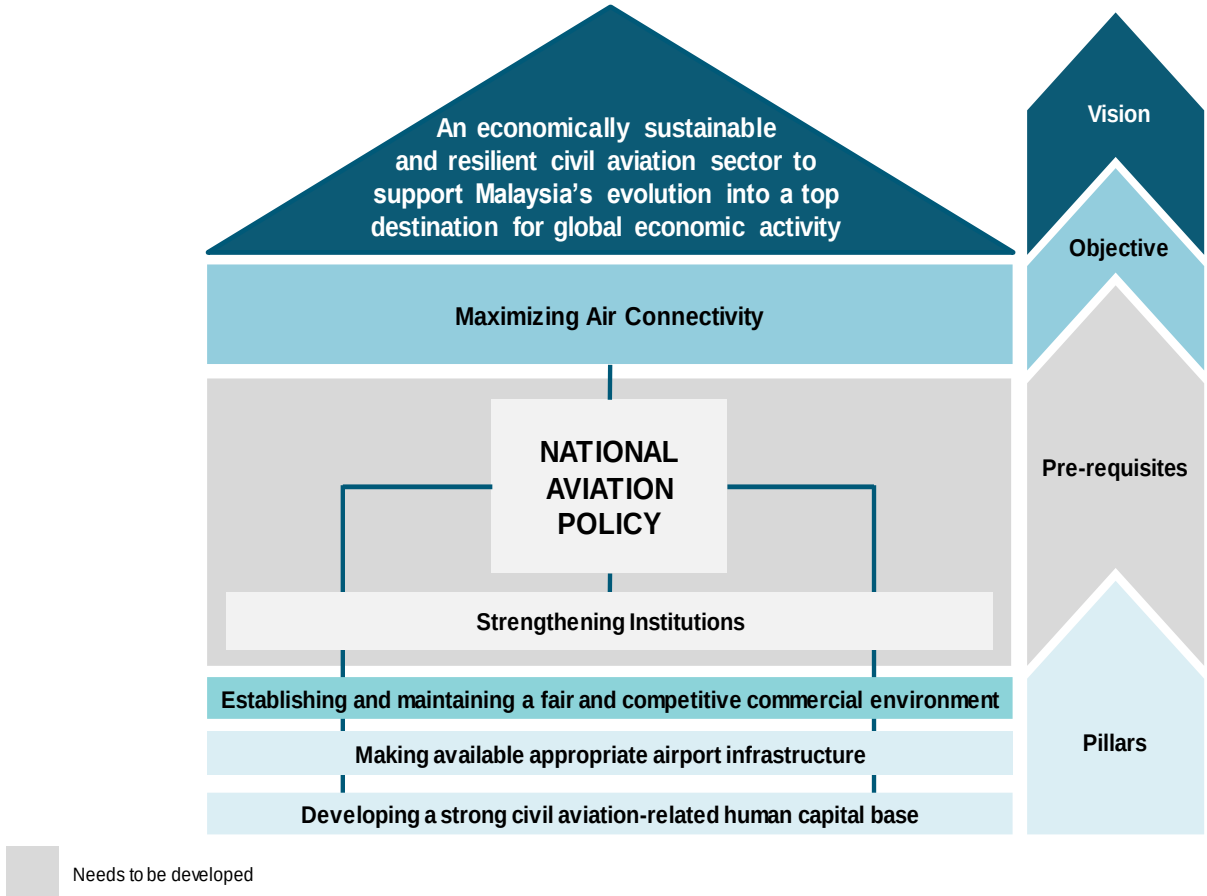
Such a strategic positioning requires the support of a strong human capital base that is productive and able to adapt to a dynamic business environment, particularly to meet the challenges of increasing competition and technological advances. Meanwhile, the establishment and maintenance of a fair and competitive commercial environment would allow the sector to thrive without sacrificing consumer welfare.

Finally, it is also acknowledged that the implementation of this strategic positioning, as well as, the Proposed EMP as a whole, is dependent on the effective functioning of ANS. Apart from ensuring the safety of passengers and service providers, high-performing ANS are critical in developing an efficient civil aviation sector. Suboptimal ANS will, at best, lead to negative economic consequences due to air traffic congestion and constrained traffic growth and at its worst, cause loss of lives. Although ANS are currently not within the scope of the Proposed EMP, the Plan's recommendations will be coordinated with related current and future overall developments in the civil aviation sector so as not to hinder the sector's development.

SECTION 4: THE MASTER PLAN FRAMEWORK

The strategic positioning outlined in Section 3 of the document informs the Master Plan Framework, that is, the overall vision, objective, and strategic pillars for the sector in 2030 (see Figure 15).

Figure 15: The Master Plan Framework



Source: MAVCOM

Vision and Objective

The overall vision for the Proposed EMP is the development of an economically sustainable and resilient civil aviation sector that can significantly support Malaysia's evolution into a top destination for global economic activity by 2030. This should be consistent with the NTP's Policy Thrust 5 ("Expand global footprint and promote internationalisation of transport services"). Given the strong interlinkage between the contribution of tourism and trade to economic growth and air connectivity, the main conduit between the civil aviation sector and its role in Malaysia's economic development is through air connectivity.

While it is a necessary condition, a high-performing civil aviation sector is only one of the enablers for Malaysia to achieve its vision of becoming a developed economy, by transforming itself into a top destination for global economic activity. The sector needs to be part of an efficient, effective, and sustainable multi-modal transport and telecommunications networks, which in turn are instrumental in Malaysia's trajectory towards becoming a top destination for global tourism and trade. There is also a virtuous cycle at play—the growth of the aviation sector hinges on the performance of the tourism and trade, from which the sector derives its demand in terms of passengers and freight.

Hence, manifesting the vision of the Proposed EMP requires meeting the strategic objective of maximizing air connectivity in parallel with efforts to grow Malaysia's economic base, particularly in terms of tourism and trade.

Strategic Pillars

Maximizing air connectivity requires commitment towards implementing the three Strategic Pillars, which will be actualized through relevant action plans, outlined as part of the recommendations to the Proposed EMP:

- **Pillar 1: Establishing and maintaining a fair and competitive commercial environment**
  A high-performing civil aviation sector can only exist in a commercial environment that is fair and competitive. While "fairness" is subjective, MAVCOM has articulated that it applies the fair competition principle in terms of economic regulation of the Malaysian civil aviation sector, which promotes equity or distributive justice as part of the overall objective of maximizing consumer welfare, while also safeguarding the sector from anti-competitive practises. This principle is also expressed through effective consumer protection and PSOs
- **Pillar 2: Making available appropriate airports infrastructure that is efficient and effective in terms of financial performance and service delivery**
  High levels of air connectivity are enabled by an optimal airports infrastructure, which is defined as one which meets the service level requirements of airport users, i.e. passengers and airlines, as well as, one which is financially sustainable. Airlines choose to fly into airports that provide a high degree of operational efficiency and service quality, which affect their own efficiency, pricing, and networks. Given the high capital and operational costs involved in developing and running airports, it is also imperative for airports to achieve the most optimal returns relative to their funding costs
- **Pillar 3: Developing a strong civil aviation-related human capital base to support the development of the sector**
  High air connectivity and an optimal airports infrastructure are only possible if they are supported by effective and efficient human capital, not only in terms of technical skills, but managerial and administrative skills as well

Given that the NTP is the most relevant guiding document for the Proposed EMP at the time of writing, these Strategic Pillars are linked to the following Policy Thrusts (see Table 6).

Table 6: Linkage between the Master Plan's Strategic Pillars and the NTP's Policy Thrusts

Proposed EMP's Strategic Pillar	NTP's Policy Thrust
Pillar 1: Establishing and maintaining a fair and competitive commercial environment	• Policy Thrust 1: Strengthen governance (of national transport) to create a conducive environment for the transport sector
Pillar 2: Making available appropriate airports infrastructure	• Policy Thrust 2: Optimize, build, and maintain the use of transport infrastructure, services and networks to maximize efficiency and enhance economic competitiveness • Policy Thrust 3: Enhance safety, integration, connectivity and accessibility for seamless journey
Pillar 3: Developing a strong civil aviation-related human capital base	• Policy Thrust 5: Expand global footprint and promote internationalisation of transport services (via enhancing the competitiveness of the sector)

Source: MAVCOM, MOT

Prerequisites for the Master Plan

The successful implementation of the Proposed EMP hinges on two factors: the existence of strong institutions and the establishment of an NAP.

Strong Institutions

The GoM plays many overlapping and, at times, contradictory roles in relation to the Malaysian civil aviation sector. A critical factor for the successful implementation of the Proposed EMP and its recommendations, therefore, is a stronger delineation of these roles and responsibilities. This is aimed at eliminating conflicts of interest, in addition to providing consistency in policy aims and directions.

Moreover, as outlined in Section 5 of this document, the implementation of the Proposed EMP's recommendations requires a relatively high degree of coordination between ministries and agencies. Hence, the capacity of these institutions needs to be strengthened, in terms of human capital, technical and operational efficiency, as well as, technological inputs. For instance, as the global aviation industry evolves, capacity is required to assess and prepare for increased liberalization on one hand, and the game-changing impact of technologies, on the other.

National Aviation Policy

Notwithstanding the establishment of the NTP, the implementation of the Proposed EMP still requires the development of an NAP as its key enabling instrument. While the draft NTP does include measures related to the civil aviation sector, these measures are placed within the context of a multi-modal transportation framework and are not necessarily specific to the aviation sector. As highlighted, the terms of reference for an NAP should include the following:

- Identification of clear objectives and priorities for the development of the civil aviation sector, with clear directions on the balance of priorities between economic, safety, security, environmental, and societal imperatives
- Overarching policies on the economic management of the civil aviation sector, including but not limited to, liberalization, and ownership and management of transportation assets
- Terms of reference for supplementary guidance for the sector, including legislation, regulations, and related plans and strategies

These terms are articulated further in Section 5 of this document.

Interlinkages Within the Framework

Regardless of the organization of the Proposed EMP's recommendations according to respective pillars and overarching initiatives within the Framework, all components of the Proposed EMP are interlinked with each other. Therefore, these recommendations need to be implemented in a comprehensive, rather than in a piecemeal manner, for the Plan to be effective.

For instance, improvements in air connectivity require macro-level measures to promote tourism and trade, which in turn drive air traffic demand for both passengers and freight. However, it also requires more micro-level initiatives designed to attract more airlines to fly into Malaysia to boost air connectivity, as well as, availability of appropriate airports infrastructure. Among the key measures required are reforms to the airports industry structure, entailing the requirements for financial transparency and changes in the corporate governance for the main airport operator, MAHB, to prepare the industry for the introduction of increased competition.

Furthermore, this reform process needs to be undertaken in parallel with the implementation of the QOS Framework, as well as, data-driven analyses of airports' efficiency and market power to determine the way that airports' charges are regulated. The implementation of the Proposed EMP also hinges on policy changes, namely, in terms of liberalization of ownership for the sector in the long term. Finally, the sectoral developments within the Proposed EMP are not possible without a workforce that is able to adapt to a more competitive and liberalized market, as well as, technological evolution within the sector.

SECTION 5: MASTER PLAN RECOMMENDATIONS

This section provides detailed recommendations for the Proposed EMP based on the framework outlined in Section 4 of this document.

The key enabler for the Proposed EMP's Strategic Pillars is the development of an NAP that will provide policy and legislative support for the implementation of the Proposed EMP.

Based on the issues and challenges and the resultant positioning for the sector articulated in Section 2 of the document, the Proposed EMP recommendations were developed in accordance with the three Strategic Pillars listed in the framework outlined in Section 4 of the document, namely:

- Pillar 1: Establishing and maintaining a fair and competitive commercial environment
- Pillar 2: Making available appropriate airports infrastructure
- Pillar 3: Developing a strong civil aviation-related human capital development base

The recommendations for the strategic objective, Strategic Pillars, and the NAP are expanded into specific implementation plans with timelines and stakeholders.

Finally, as highlighted in Section 4 of the document, all components of the framework are closely interrelated, and as such, the recommendations need to be implemented on a wholesale and not on a piecemeal basis to ensure the Proposed EMP's effectiveness.

It is proposed that these recommendations be translated into action items that will be implemented within four phases, given the ten-year implementation period of the Proposed EMP (2021 – 2030):

- Foundation-setting (where applicable) : Completed by 2020
- Short-term : Completed by 2022
- Medium-term : Completed by 2025
- Long-term : Completed by 2030

Prerequisite: Developing a National Aviation Policy

As mentioned in Sections 1 and 4 of this document, a key imperative for the implementation of the Proposed EMP is the development of an NAP which will provide guidance and direction to the overall development of the sector. The Policy will need to include the following terms of reference, among others:

- Identification of objectives and priorities for the sector development, with clear directions on the balance of priorities between economic, safety and security, environmental, and societal imperatives
- Overarching policies on the economic management of the sector, including but not limited to liberalization, and ownership and management of transport assets
- Overarching policies on technical, safety and security, and environmental issues related to the sector
- Terms of reference for supplementary guidance for the sector, including legislation, regulations, and related plans and strategies

With regards to the implementation of the Proposed EMP, there are several recommendations which require policy direction, namely:

- **Liberalization of air routes and the airlines sector:** Recommendations related to increasing the number of airlines operating within and out of Malaysia involve changes in policies related to market access and ownership requirements for airlines
- **Liberalization and increased commercialization of airports:** Recommendations related to developing appropriate airport infrastructure also require policy shifts with regards to funding for development capex. In addition, policy decisions are required for the way in which non-commercial or financially non-viable airport infrastructure is funded

Areas where recommendations require policy shifts are highlighted as action items under the relevant Strategic Pillars.

Recommendations

A. Development of a National Aviation Policy

1. Developing a National Aviation Policy

Implementation period	Foundation-setting
Stakeholders	MOT

Given that the Proposed EMP's strategic objective is maximizing air connectivity, it is proposed that this objective is embedded as a primary part of the NAP. However, given that the Policy will encompass other areas of the civil aviation sector beyond economic development, the overriding emphasis on maximizing air connectivity will need to be balanced against other objectives: safety and security, technical, and environmental. Table 7 illustrates the proposed terms of reference for the Policy with examples of how they might be actualized.

Table 7: Terms of Reference for the Proposed NAP

Terms of reference	Examples
Identification of objectives and priorities for sector development, with clear directions on the balance of priorities between economic, safety and security, environmental, and societal imperatives	While it is proposed that the commitment towards maximizing air connectivity be embedded into the NAP, this commitment needs to be balanced against other priorities. For instance, the overriding priority for the NAP could be non-compromising stance towards safety and security. This means that airports that do not meet CAAM's technical and safety standards would not be allowed to operate, regardless of the connectivity implications.

Terms of reference	Examples
Overarching policies on the economic management of the sector, including but not limited to liberalization, and ownership and management of transport assets	• As highlighted in various parts of the Proposed EMP, the Plan's implementation requires the following policy directions: ○ Airports: Given the proposal for greater commercialization of the airports[33] industry outlined further in the Proposed EMP, how will airport infrastructure be funded in the future? ○ Airlines: What are the policy imperatives for ASAs, including redlines for negotiations? In addition, policy shifts are required in relation to ownership requirements for airlines operating from Malaysia. ○ ANS: Will ANS continue to be under the jurisdiction of CAAM and funded by the GoM? Are there plans to privatize ANS? How will this impact the funding, operations, and efficiency of ANS going forward to 2030?
Overarching policies on technical, safety and security, and environmental issues related to the sector	• Technical and safety: The CAAM has highlighted that there are airports and STOLports which do not meet technical and safety standards. Policy directions are required as to the continuing operations of these facilities. • How would the NTP's commitment towards the promotion and investment in green transport be implemented in the aviation sector? Will this require government funding?

[33] Refer to MAVCOM Position Paper on Malaysia's Airports Industry Structure (December 2019).

Terms of reference	Examples

Terms of reference for supplementary guidance for the sector, including legislation, regulations, and related plans and strategies	• Operationalising the NAP requires enabling guidance documents.
	• Apart from legislation and regulations which may have to be established, the Proposed EMP also needs to be combined with a Technical Master Plan to form a comprehensive National Aviation Master Plan, which will be fully guided by the NAP.
	• A National Airport Strategic Plan is also required, covering, among others:
	  ○ Commitment to multi-modal connectivity for airport development
	  ○ Delineation of commercial and non-commercial airports, which will affect the funding for these airports
	  ○ Decisions relating to new airports or extensions to existing airports to be subject to a robust economic, operational, and environmental impact analyses

Source: MAVCOM

Objective: Maximizing Air Connectivity

As stated in Sections 2 and 3 of this document, air connectivity is strongly dependent on the existence of a strong economic base, tourism, and trade. In addition, MAVCOM's analysis has found that air connectivity is positively influenced by the number of airlines flying into a country, as well as, the availability and accessibility of multi-modal public transportation.

Hence, initiatives to improve Malaysia's air connectivity beyond the Proposed EMP's Strategic Pillars should be focused on strengthening Malaysia's economic base and ensuring seamless, multi-modal connectivity. Also, while airlines sector should be left to operate on a purely commercial basis, policy levers could be utilized to encourage more airlines to operate into and out of Malaysia. These include exploring long-term policy transformation, such as changing the ownership and control regime to principal place of business, as well as, granting ninth freedom right, perhaps on a unilateral basis.

Recommendations

A. Strengthen Malaysia's economic base

1. Coordinating tourism development plans with air routes in terms of the ATR negotiations with other countries
2. Coordinating the development of air connectivity with trade initiatives, such as the LTFMP

B. Better utilization of ASAs

1. Ensuring ASAs are linked to connectivity considerations

C. Multi-modal, seamless connectivity

1. Establishing a policy commitment for transportation development plans to consider their impact and connectivity with other modes of transport, including at the last mile

A. Strengthen Malaysia's economic base

1. Coordinating tourism development plans with air routes in terms of the ATR negotiations with other countries

Implementation period	Foundation-setting, with periodic reviews
Stakeholders	MOTAC, Tourism Malaysia, state governments, MOT, MAVCOM, domestic and foreign airlines, airports

As part of the Tourism Transformation Plan 2.0 developed by MOTAC, the focus on developing air connectivity had been part of Entry Point Project 11 (EPP 11), which was aimed at attracting more medium-haul[34] tourist arrivals. As such, the EPP 11 aimed to increase flight frequencies to 10priority cities in Australia, China, India, Japan, South Korea, and Taiwan, namely: Beijing, Delhi, Melbourne, Mumbai, Osaka, Seoul, Shanghai, Sydney, Taipei, and Tokyo. These priority cities had been chosen because Australia, China, India, Japan, South Korea, and Taiwan are expected to contribute over 90% of the incremental tourist arrivals from medium-haul countries by 2020.

MOTAC is subsequently developing the National Tourism Policy (NTMP) with potential changes in promoted air routes. In this regard, MAVCOM and industry players have been invited to participate in the development of the NTMP, and therefore are able to coordinate plans in relation to air routes with tourism development plans.

[34] Defined in EPP 11 as flights of between four to six hours.

2. Coordinating the development of air connectivity with trade initiatives, such as the LTFMP

Implementation period	Foundation-setting, with periodic reviews
Stakeholders	MOT, LTFMP Task Force, MITI, Royal Malaysian Customs, EPU/MEA, DOS, MAVCOM, air freight companies, airlines, airports

With regards to trade, we note that Malaysia's LTFMP includes various measures aimed at improving Malaysia's air connectivity in general, and air freight connectivity in particular. This includes measures such as:

- Encouraging and enabling new air cargo volumes from Indonesia, Singapore, Thailand, and other ASEAN markets through air connectivity in addition to improvements to road transport connectivity, as well as, enhancing domestic connectivity from key airports to KUL
- Establishing a national freight data programme. This is imperative given that there is a paucity of disaggregated and detailed data on air freight, which hampers efforts at determining long-term strategies for the cargo sector, including requirements for multi-modality
- Facilitating the adoption of the latest technology. There is a need for government ministries and agencies to provide regulatory clarity on the adoption of these technologies, such as high-precision tracking equipment, testing drones, sensors, and data loggers

It is proposed that the final recommendations for the Economic Master Plan for the Malaysian Civil Aviation Sector that are related to passenger and freight connectivity ensure that the coordination with these existing measures is continuously reinforced, as well as, reviewed and updated when necessary.

In addition, various master plans, such as the Fourth Industrial Master Plan and the LTFMP, recognize the importance of close engagements between the relevant stakeholders from both government and industry. We recommend that existing working groups covering the transport and logistics sector convened by the GoM, such as the National Logistics Task Force, should give due consideration to the air cargo industry as part of their wider work covering the wider logistics industry. In particular, the working groups should consider the two following areas:

- **Ensuring air cargo meets the needs of the economic base**
  Given the developments that will shape the air cargo industry in the future, government and industry stakeholders should jointly work towards ensuring that the industry can cater to the needs of the underlying economic base. Changes in patterns of international trade and commercial activities mean that the air cargo sector needs to adapt to meet those needs—for example, by providing sufficient frequency and capacity to cater to just-in-time supply chains or high-precision tracking capabilities to facilitate e-commerce activities. We recommend that the GoM keeps close engagement with industry stakeholders to ensure that the air cargo industry develops sufficiently to perform its role as a catalyst to the wider economy and to identify and implement measures to remedy any shortcomings that are identified

- **Improving trade facilitation and behind-the-border measures**
  As previously discussed, behind-the-border measures on trade facilitation play a crucial role in the air cargo industry as air cargo operations need to be complemented by low processing time and cost in order to be attractive. These involve various ministries, departments, and agencies that cover various parts in the process of air cargo shipments. To this end, government engagement should provide a platform for cross-agency collaboration to implement improvements in behind-the-border measures to reduce the processing time and cost of air cargo operations

B. Better utilization of ASAs

1. Ensuring ASAs are linked with connectivity considerations

Implementation period	Long-term
Stakeholders	MOT, MAVCOM

To date, Malaysia has signed bilateral ASAs with 106 countries. However, Malaysian carriers have utilized[35] 3rd and 4th freedom rights in the respective ASAs for only 26 countries, in contrast to 44 countries when Malaysia Airlines System (MAS) was at its peak network size. Among these 26 ASAs, eight of them are restricted while 18 are unrestricted i.e., open skies agreements.

As at December 2018, of the 26 ASAs currently being utilized, Malaysian carriers have tended to utilize the 18 unrestricted ASAs more than they have restricted ASAs. Malaysian carriers operate seven or more (i.e. at least daily) flights per week to 16 of the 18 countries with which Malaysia has unrestricted ASAs, with the exceptions being Laos and Pakistan, with which Malaysian carriers operate seven flights or fewer per week. In addition, Malaysian carriers had utilized more than 80% of the ATRs provided in two restricted ASAs, which are with Australia and India.

On the other hand, foreign carriers are not reciprocating the utilization of their ASAs with Malaysia. For example—with the exception of the Japanese and Saudi Arabian carriers which currently utilize 100%—foreign carriers such as those from Bangladesh, Nepal, and Pakistan utilize less than 50% of their restricted ASAs with Malaysia. Furthermore, Australian carriers do not utilize the restricted rights at all. For the unrestricted ASAs, there were no carriers from countries such as Cambodia, Laos, Macao, Myanmar, New Zealand, and the US operating into Malaysia.

[35] Unrestricted ASAs do not have limits in terms of types of aircraft, number of seats, and number of frequencies that can be deployed by the designated carriers in the ASAs, whereas the restricted ASAs specify restrictions to capacity deployment. Utilization of an ASA means operating at least one flight into a country that is a party to an ASA.

There are various reasons for the discrepancy between the number of ASAs signed and their utilization rates. This discrepancy may be connected to the constraints on Malaysia's air connectivity imposed by a relatively weak economic base, in addition to the deteriorating service delivery of Malaysia's airports and ground-handling services. It also implies that a more comprehensive ASAs strategy is required that is linked with air connectivity requirements. Such a strategy is particularly important given that ASAs—especially with more developed countries and regions such as the EU—increasingly involve commitments that go beyond ATRs and include issues such as proscribing subsidies. Given the potential for more trade-offs, it is even more imperative that Malaysia obtains the maximum amount of benefits from these agreements.

Other ways in which ASAs may be utilized to facilitate an increase in the number of airlines operating within and from Malaysia, and which require policy decisions, are:

- **Changing the regime for the designation of Malaysian carriers from substantial ownership (51%) to a principal place of business (PPOB) mechanism**
    - The existing airline ownership and control requirements limit the financing opportunities available to airlines in terms of foreign investment and increases airlines' reliance on government support. They also restrict the ability of airlines to better structure their international networks
    - The adoption of the PPOB requirement in lieu of the ownership and control requirements would entail domestic regulatory changes, as well as, the renegotiation of Malaysia's ASAs. An example of a state adopting the PPOB principle is Hong Kong
    - In view of ASEAN's growing economies and the strong economic activities and passenger traffic intra-ASEAN and ASEAN-Dialogue Partners, Malaysian carriers may be in a good position to capitalize on the establishment of ASEAN community carriers for further expansion. However, the creation of ASEAN community carriers may also result in a decrease of connections through Malaysia, as carriers are allowed to fly from any point within ASEAN. This further emphasizes the need for a strong economic base in Malaysia to continuously generate demand for flights into and within Malaysia
- **Granting cabotage (ninth freedom) right in ASAs**
    - The grant of cabotage right should be weighed by its costs and benefits. For example, Australia generally does not intend to permit cabotage. However, it may consider, in exceptional circumstances, granting cabotage for strategic purposes, such as to gain access to another state's domestic market or to allow foreign operators to serve domestic services on routes that are not served by local carriers
    - Amongst the possible costs of the grant of cabotage right to foreign operators are: reduced direct investment in the country's aviation sector, a decrease in air services and connectivity for regional areas—in the event that local airlines scale back their operations in response to competition from foreign operators—and lesser local employment

- Given Malaysia's close economic ties with ASEAN Member States (four out of Malaysia's top ten trading partners are ASEAN Member States – Indonesia, Singapore, Thailand, and Vietnam), Malaysia may consider prioritizing the grant of ninth freedom right intra-ASEAN. In the Chilean experience, its pursuit of cabotage right (and the liberalization of foreign ownership in airlines) allowed its strong national carrier to expand within the Latin American region and become one of the region's major airlines
- The grant of cabotage right to foreign operators should be carried out on a case-by-case basis, as its impact would vary based on the parties and circumstances involved. The grant of cabotage right should be exercised pursuant to clear objectives such as a strategic objective of getting reciprocal access to another domestic market to the benefits of Malaysian carriers or to increase competitiveness on certain Malaysian domestic routes

C. Multi-modal, seamless connectivity

1. Establishing a policy commitment for transportation development plans to consider their impact and connectivity with other modes of transport, including at the last mile

Implementation period	Foundation-setting, with periodic reviews
Stakeholders	MOT, EPU, MAVCOM, APAD

The commitment towards seamless connectivity—which is part of the third Policy Thrust of the NTP currently being developed—should be embedded in future transportation plans, regardless of mode. For instance, should plans to develop the Kuala Lumpur-Singapore High Speed Rail (HSR) be revived, the impact of the HSR on air transport should be considered, particularly given that approximately 10% of international passenger traffic in Malaysia is between Kuala Lumpur[36] and Singapore, as well as, the fact that around 50% of passengers for JHB travel to and from KUL and SZB.[37]

Conversely, development plans for airports should also consider their connectivity with available land transport options, particularly at the last mile.

We propose that large-scale transportation developments, whether by land, sea, or air, be subject to a feasibility study which includes an impact analysis on other modes of transport as part of the pre-commencement process, especially if such investments require government approval to proceed.

[36] KUL and Skypark Terminal Sultan Abdul Aziz Shah Airport, Subang ("SZB").
[37] MAVCOM estimates that the HSR would reduce air passenger growth by up to 500 basis points, or 3mn passengers, if the HSR is fully operational by 2027 as originally planned.

Strategic Pillar 1: Establishing and Maintaining a Fair and Competitive Commercial Environment

Enhancements to Malaysia's air connectivity, as well as, the development of an optimal airports infrastructure need to be built on a foundation of a fair and competitive commercial environment. This, in turn, will be based on a phased approach in enforcing relevant measures, including for competition and liberalization of ownership for firms in the sector.

Recommendations

A. Enforcing a sound and updated aviation-related competition law
1. Applying competition law based on fair competition principle in the short- to medium-term
2. Applying competition law based on free competition principle in the medium- to long-term
3. Incorporating competitive neutrality principle and rules on subsidies
4. Revision of Competition-related Guidelines to ensure relevance

B. Promoting liberalization of ownership-related measures for the civil aviation industry
1. Phased approach to liberalize ownership/equity policy of airlines
2. Phased approach to liberalize ownership/equity policy of ANSP

C. Reducing government interference in commercial decision-making
1. Abolishing the golden share in MAHB

D. ASEAN community carrier
1. Championing the establishment of a community carrier in ASEAN

A. Enforcing a sound and updated aviation-related competition law

Regulators in many jurisdictions are moving away from enforcing the traditional economic regulation instruments to enforcing competition laws for the aviation services market as it becomes more liberalized and open to competition. In the case of Malaysia, the Competition Act 2010 [Act 712] was applied to regulate competition matters in the aviation services market between 2012 and 2016. When MAVCOM became operational on 1 March 2016, it took over the function of regulating competition matters in the industry from the Malaysia Competition Commission (MyCC) as it applies Part VII: Competition of Act 771 to the aviation services market.

1. Application of competition law based on fair competition principle

Implementation period	Current to medium-term
Stakeholders	MAVCOM

Currently, MAVCOM applies the fair competition principle when applying and enforcing the competition law in Part VII of Act 771. This is currently consistent with the promotion of the application of fair competition principle by the ICAO. However, the ICAO does not provide an official definition of the principle, preferring instead to leave the details and interpretation to its Members.

2. Application of competition law based on free competition principle

Implementation period	Medium- to long-term
Stakeholders	MAVCOM

Competition laws for the aviation services sectors in most jurisdictions are undertaken by their respective competition authorities. The application of these generic competition laws, including Act 712, are mostly based on the free competition principle.

MAVCOM will close this gap by moving to applying the free competition principle on a phased basis, in the medium- to long-term. It must be noted that the adoption of free competition principle will affect the application and enforcement of competition law in Part VII of Act 771 vis-à-vis the overall function of MAVCOM—that is, MAVCOM may need to have a narrower approach when undertaking its competition work, prioritizing free market over public interest, for instance.

3. Incorporation of competitive neutrality principle and state aid rules

Implementation period	Medium- to long-term
Stakeholders	MAVCOM

MAVCOM notes that already certain ASAs and free trade agreements (FTAs) have incorporated the competitive neutrality principle and subsidies/state aid rules to reflect the existence of such principle and rules in the competition laws of certain jurisdictions. As observed earlier, Part VII of Act 771 currently does not incorporate the competitive neutrality principle nor enforce subsidies rules. MAVCOM will undertake a study to review Part VII of Act 771 and to recommend the appropriateness of incorporating such principle and rules in Part VII of Act 771 in the future.

4. Revision of Competition-related Guidelines to ensure relevance

Implementation period	Medium- to long-term
Stakeholders	MAVCOM

MAVCOM will undertake periodic review of its competition-related Guidelines to ascertain relevance and the need for revision, if necessary. This may include, for example, vertical common ownership and common ownership with minority shareholdings and/or control.

B. Promoting liberalization of ownership-related measures for the civil aviation industry

1. Phased approach to liberalize ownership/equity policy of airlines

Implementation period	Medium- term to long-term
Stakeholders	MOF, MOT, MAVCOM

Plans to re-list the flag carrier may be the first step towards a more open environment in the future. Already other countries are considering more relaxed approach towards foreign equity shareholdings for their airlines sector but still within the boundaries of sovereignty principle for airspace.

In charting its future policies regarding airline nationality requirement, Malaysia should deliberate on whether there is a need to liberalize its airline nationality requirement in order to further develop its aviation industry. The factors that should be considered include the availability of domestic capital, as well as the effects of such liberalization on the market, industry, and consumers, taking into account the experiences of other countries.

However, a number of States have liberalized the nationality requirement for their airlines by applying the principal place of business requirement, the regulatory control requirement, and/or the ownership and control by a national of any Party within a group of States (such as the EU community carrier). Based on the ICAO, there are 316 and 142 bilateral ASAs that recognized airline nationality based on the PPOB and community interest, respectively[38].

Given that the airline nationality requirement is governed at both the domestic and international levels, any liberalization would necessarily entail changes to the States' domestic laws as well as amendments to the existing ASAs. Unilateral liberalization of the airline nationality requirement by a State might have minimal impact. A foreign-owned airline established in a State would be limited to domestic operations, since other States may withhold their authorization for that airline to provide international air services under the ASAs that contained the ownership and control requirements.

2. Phased approach to liberalize ownership/equity policy of ANSP

Implementation period	Medium- term to long-term
Stakeholders	MOF, MOT, MAVCOM

Malaysia's ANSP is currently under the purview of CAAM and is the only part of the aviation services value chain that has yet to be privatized and/or liberalized. In the longer term, the GoM may want to consider and commence work to privatize the ANSP in phases, to address the resource constraints that it is facing to develop this sub-sector.

C. Reducing government interference in commercial decision-making

1. Abolishing the golden share in MAHB

Implementation period	Short-term
Stakeholders	MOF and MAHB

The GoM no longer holds a golden share in the flag carrier following its restructuring programme. As such, the GoM should be able to abolish its golden shares in the airport operators as the role and functions of golden shares are superseded by the implementation and enforcement of newer regulatory instruments as contained in Act 771. Furthermore, abolishing the golden shares in the airport operators may make the enterprises more attractive to foreign investors who are considering taking up larger equity stakes in the enterprise. A potential negative is the impact on fund-raising activities as the golden share may accord MAHB with sovereign ratings, which may not be available if it is abolished.

[38] Out of 2,913 ASAs. ICAO (2018). World Air Services Agreements (WASA) database. Available at https://data.icao.int/wasa

D. ASEAN Community Carrier

1. Championing the establishment of a community carrier in ASEAN

Implementation period	Long-term
Stakeholders	MOT, MAVCOM, airlines

This recommendation recognizes the growth and potential of an airline to become a community carrier in the region as has been undertaken in Europe as part of its single market integration generally, and single aviation market, specifically. An ASEAN community carrier could be Malaysia's flag carrier, dominant airlines (AirAsia), or an ASEAN-based airline.

An ASEAN community carrier can be defined as an airline that is substantially-owned and effectively controlled by one or more ASEAN Member States and/or its nationals. This requires:

- the carrier to be incorporated and have its PPOB in the territory of the Contracting Party that designates the airline
- the Contracting Party designating the airline to have and maintain effective regulatory control

The establishment of a community carrier would not only require unilateral liberalization by Malaysia, but also entails negotiating for broader and more liberal ownership provisions in ASEAN regulatory instruments. It must be noted that currently, the appetite of the ASEAN Member States is low for such a model but in the long-term, this could change as ASEAN faces competition from non-ASEAN airlines.

While this is a long-term action plan, work could commence in the short- to medium-term to assess the costs and benefits of this recommendation. For example, championing the establishment of a community carrier in ASEAN may come at the expense of the growth and support for the flag carrier. Also, while allowing for cabotage may be positive for consumers who benefit from more choices and connectivity (and potentially lower prices), it could have adverse implications on domestic airlines, which would face greater competition in the market.

Strategic Pillar 2: Making Available Appropriate Airports Infrastructure

Given that one of the factors driving air connectivity is the number of airlines flying into a country, connectivity is also intrinsically linked with the availability of appropriate—that is, financially and operationally optimal and efficient—airports infrastructure for these airlines to fly into.

Recommendations

Given the critical importance of providing optimal and efficient airports infrastructure to improving Malaysia's air connectivity, and taking into consideration the findings from MAVCOM's review of Malaysia's airports industry, we propose greater commercialization of airports, in addition to action plans to improve service levels.

It should be noted that reforms to the Malaysian airports industry need to take into consideration the terms of the existing OA between MAHB and the GoM which expires in 2034 and needs to be coordinated with the proposed terms of the OA extension, which is currently being negotiated.

A. Greater commercial behaviour of airports
1. Granting full capex responsibility to operators
2. Introducing competition in two phases

B. Improving service levels
1. Full implementation of the QOS Framework for all airports
2. Reforming the ground-handling sub-sector
3. Developing a framework to measure the efficiency of Malaysia's airports
4. Committing to integrated terminals

H. Greater commercial behaviour of airports

1. Granting full capex responsibility to operators

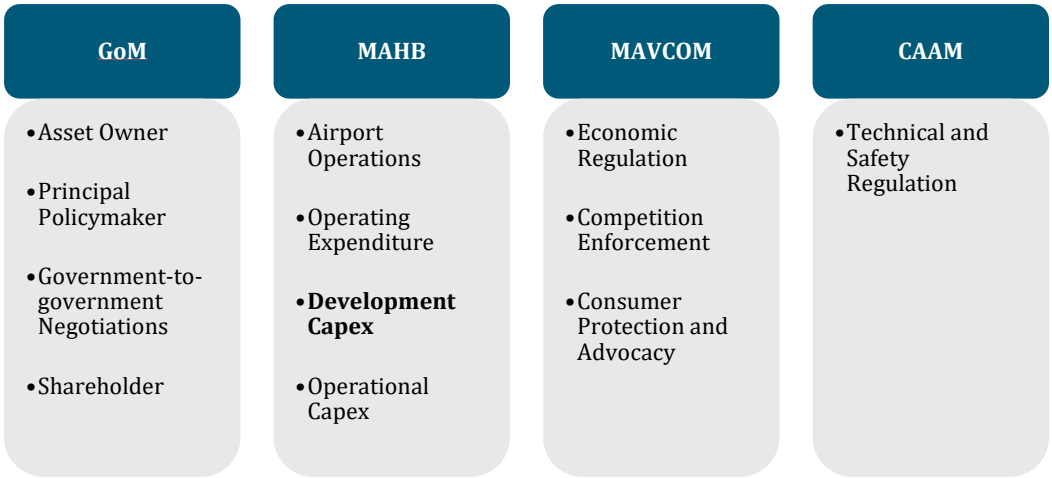
Implementation period	Medium- to long-term
Stakeholders	MAHB, MOT, MOF

Changes in corporate governance would enhance the commercial behaviour of airport operations: granting full responsibility over all capex and opex to airport operators, and eventually abolishing the golden share in MAHB.

This will require a change in the terms of the OA to become a full-fledged concession agreement. The OA may need to be terminated as the proposed changes will deviate from the existing underlying principles governing the relationship between the GoM and the operator.

The proposed delineation of responsibilities between the GoM, MAHB, and independent regulators in the industry is outlined in Figure 16. The key change is in fully transferring the responsibility for development capex to MAHB, in addition to its current responsibility over operational capex.

Figure 16: Proposed Delineation of Responsibilities between GoM, MAHB, MAVCOM, and CAAM



Source: MAVCOM

Given the costs involved in terminating the existing OA, it is proposed that the extension to the OA, which is currently being negotiated, include clauses that will enable the airport operator to be fully responsible for all capex and opex.

2. Introducing competition in two phases

Given the term of the current OA, and the GoM's inability to fund airport development, we propose that competition is introduced to the airports industry in two phases:

a) Decentralization of MAHB

Implementation period	Medium to long-term
Stakeholders	MAHB, MOT, MOF

Airports such as PEN, BKI, and Kuching International Airport (KCH) should be run by fully autonomous subsidiaries of MAHB. This depends on MAHB being amenable to exercise its right under Article 8.3(b) of the OA which allows for such changes.[39] This would allow for the decentralization of certain airports without having to resort to the termination of the OA. Otherwise, the existing OA would need to be terminated to allow separate agreements to be entered into with the individual airport operators in charge of the different airports.

The latest discussions on the extension of the OA indicates that MAHB is indeed amenable to the concept of breaking-up the current network into separate clusters.

[39] Article 8.3(b) of the OA allows the airport operator to delegate its obligations in the OA to one of its wholly-owned subsidiaries on the condition that the airport operator remains responsible for such delegated obligations.

b) Introducing different airport networks

Implementation period	Long-term
Stakeholders	MAHB, MOT, MOF

This will allow for competition within the existing airports network, without resorting to full-fledged privatization, as well as, allow for cross-subsidies. To effect this change, we propose that a new term be included in the OA extension which permits it to be reviewed by the GoM should the need to introduce more competition arises.

I. Improving service levels

1. Full implementation of the QOS Framework for all airports

Implementation period	Foundation-setting
Stakeholders	MAVCOM, MAHB, SATSSB, other airport operators

As mentioned in Section 2 of this document, MAVCOM has developed a QOS Framework for Malaysia's airports—initially rolled out at KUL-T1 and KUL-T2 in 2018[40]—which imposes a set of penalties linked to the deteriorations in airport service levels. Service-quality levels measured include those for operational infrastructure such as the aerotrain and toilet facilities, and operational efficiency such as queueing and baggage-handling times.

We propose that the QOS Framework to be implemented for all airports in Malaysia.

2. Reforming the ground-handling sub-sector

a) Linking ground-handling services to airport performance (via strengthening Conditions of Use)

Implementation period	Medium- to long-term
Stakeholders	MAHB, MOT, MOF

One of the issues raised by airports with regards to the QOS requirements is that some of the requirements are related to the levels of service provided by GHSPs, which have contractual agreements with airlines via service-level agreements (SLAs) rather than airports. The latter therefore claim to have no visibility or control over these GHSPs' service levels. Therefore, one way to mitigate for this disconnect between airports' and GHSPs' service levels is for airports to link their Conditions of Use for GHSPs with the relevant QOS requirements.

b) Liberalizing the ground handling sector

Implementation period	Medium- to long-term
Stakeholders	MOT, MAVCOM, GHL holders, airports, airlines

A more long-term measure to improve the competitiveness of the sector would be to introduce liberalization. While this requires a policy decision by the MOT, the Ministry has indicated that given the capacity constraints faced by the sector, it would be amenable to liberalizing the industry, particularly for the international-designated airports.

[40] The QOS had since been extended to include LGK, SZB, and BKI airports in 4Q 2018.

The GoM may want to consider allowing for majority and up to 100% foreign-owned GHSPs to operate in Malaysian airports, as international experience highlights that foreign-owned GHSPs may have better funding capacity

3. Developing a framework to measure the efficiency of Malaysia's airports

Implementation period	Foundation-setting
Stakeholders	MAVCOM

Given that returns are linked to efficiency, not only in terms of operations, but also financial management, MAVCOM intends to develop a framework to measure the efficiency of civil aviation sector players in Malaysia, including airports.

4. Committing to integrated terminals

Implementation period	Short-term
Stakeholders	MOT, airport operators

One of the key findings from MAVCOM's work on connectivity, as well as, study of airports is that integrated terminals offer more operational efficiency, and therefore, enhance connectivity.

For instance, when looking at KUL's hub efficiency, although KUL overall had more incoming flights per week than SIN and Suvarnabhumi International Airport (BKK) in 2016, each incoming passenger could only connect to 19.5 outgoing flights, compared to the 54.5 and 52.5 outgoing flights at SIN and BKK, respectively. It should be noted that the figure for KUL represents KUL-T1 and KUL-T2 combined, even though these two terminals currently do not have any airside connectivity, and therefore, effectively function as two separate airports. Passengers who need to connect between flights at the KUL-T1 and KUL-T2 would have to pass through border control, check out their baggage, and travel between the two terminals via landside transport. This burdens passengers by increasing travel time and total costs as some passengers would have to obtain temporary visas to enter the country in order to access landside transport to move between the terminals.[41]

Hence, there needs to be a policy commitment, which is then adopted in the NASP, that airport terminals need to be integrated, and in instances where disparate terminals have been built, airside and landside connectivity need to be provided.

[41] For instance, during the Master Plan Introductory Workshop held on 28 November 2017, MOTAC had highlighted a case where a family of tourists from India had to pay a visa fee of RM1,800 when transiting between KUL-T1 and KUL-T2 due to the lack of airside transit facilities. MOTAC had also highlighted its cooperation with India's Hyderabad Airport in implementing seamless transit to improve passenger experience.

Strategic Pillar 3: Developing a Strong Civil Aviation-Related Human Capital Development Base

Along with a fair and competitive commercial environment, a strong human capital base is also an important foundation for the Malaysian civil aviation sector. However, as highlighted in Section 2 of this document, the sector's human capital development at a strategic level is constrained by the following:

- A lack of a comprehensive and accurate current workforce database
- An absence of coordination and standardization in industry qualifications and certifications
- Globally-accepted standards of quality assurances on training and qualifications are not uniformly applied
- Aviation professional is not a career of choice except for pilots and flight crew
- The non-existence of a centralized training fund

Therefore, several recommendations had been developed during the Interim Workshop by participants from MAVCOM, Talentcorp, the MOHR, and the MOT.

Recommendations

While there is broad agreement amongst key stakeholders that human capital development is an industry-driven initiative, there is still a need for industry-wide coordination, with proposed recommendations during the foundation-setting, short-, medium- and long-term periods of the Proposed EMP. The delineation of responsibilities for the public and private sectors for the human capital development of the Malaysian civil aviation industry would be as follows:

A. Setting the baseline to develop a coordinated, industry-wide talent development strategy
1. Establishing a human capital database for the sector
2. Establishing a human capital development working committee for the sector
3. Study the sector workflow and value chain

B. Developing and implementing an industry-wide coordinated talent development strategy
1. Developing effective career-pathing for the sector
2. Setting up a pool training fund
3. Developing industry training modules involving partnerships between industry and academia

A. Setting the baseline to develop a coordinated, industry-wide talent development strategy

1. Establishing a human capital database for the sector
2. Establishing a human capital development working committee for the sector
3. Study the sector workflow and value chain

Implementation period	Foundation-setting
Stakeholders	MAVCOM, CAAM, MOT, MOHR, industry players

Given the lack of a comprehensive and disaggregated database of the human capital supply and demand for the sector, the foundation-setting period should be utilized to establish the baseline for the sector, which would entail the development of a National Occupational Skills Standards, as well as, a critical occupations list (COL).

The work to develop and maintain the database should be undertaken by a working committee consisting of representatives from the industry, MOHR, MOT, MAVCOM, and CAAM.

B. Developing and implementing an industry-wide coordinated talent development strategy

1. Developing effective career-pathing for the sector

Implementation period	Short- to medium-term
Stakeholders	Working committee

The baseline established should then be used to develop prospective career paths for the sector, which then can be used in branding efforts to establish a career in the sector as one of the careers of choice. This would include career-pathing for business-related professions, such as network route planning and aviation business management.

2. Setting up a pool training fund

Implementation period	Short- to medium-term
Stakeholders	MOHR, MOT, MAVCOM, CAAM, industry players

It is also proposed that a "transfer fee" be paid into the training fund by the new company in cases where an employee in the sector switches employers to ameliorate the impact of such "poaching" of staff. This is adapted from the policy practised in the banking industry.

3. Developing industry training modules involving partnerships between industry and academia

Implementation period	Medium-term
Stakeholders	Learning institutions, industry players

While such institutions exist, for example, the Centre of Excellence in Sepang initially set up by AirAsia, they have not been focused on developing the human capital base for non-technical professions in the sector. Hence, such partnerships would enable an early introduction to the business and management sides of the Malaysian civil aviation sector.

Priority Recommendations

Although it is proposed that all of the Proposed EMP's recommendations are implemented holistically, Table 8 outlines action and implementation items with the highest priority. It should be noted that some of these action items may have a long implementation period.

Table 8: Priority Recommendations for the Proposed EMP

Strategic Pillar	Sub-sector	Action Item	Implementation Item	Implementation Period	Stakeholders
Establishing and maintaining a fair and competitive commercial environment	All	Reducing government interference in commercial decision-making	Abolishing the golden share in MAHB	Short-term	MOF, MAB
Making available appropriate airports infrastructure	Airports	Greater commercial-ization of the airports industry	Granting full capex responsibility to operators	Medium- to long-term	MAHB, MOT, MOF
		Improving service levels	Fully implementing the QOS framework for all airports	Foundation-setting	MAVCOM, MAHB, SATSSB, other airport operators
			Reforming the ground-handling sub-sector	Medium- to long-term	MOT, MAHB, MAVCOM, ground-handlers
			Committing to integrated airport terminals	Medium- to long-term	MOT, airport operators

SECTION 6: CONCLUSION

The Proposed EMP has been developed by MAVCOM as a set of proposals for the MOT. It is intended to be implemented over the long-term between 2021 and 2030. The years 2019 and 2020 are the foundation-setting years, where enabling measures—such as the establishment of new policies, accompanying strategies and plans, and other factors such as institutions and baselining—should be undertaken.

It must be emphasized that the following prerequisites should be met for the Proposed EMP to achieve its vision and objective of developing an economically sustainable and resilient civil aviation sector that will contribute significantly to Malaysia's trajectory towards a global economic centre of activities. These are:

- The strengthening of civil aviation-related institutions
- The development of an NAP
- The comprehensive and integrated implementation of all the Proposed EMP's recommendations

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APPENDIX 1: WORKSHOP PARTICIPANTS

Introductory Workshop

28 November 2017

Organization	Invited	Attendees	Attended
Ministry of Transport	YBhg. Datuk Seri Hj. Saripuddin Hj. Kasim, Secretary General Mr. Mohd Khairul Adib Abd Rahman, Deputy Secretary General (Policy)	Mr. Mohamad Radzuan Bin Mazlan, Under Secretary, Aviation Division Ms. Low Lai Yoong Mr. Muhammad Fadhli Zainul Abidin Ms. Sulianiza Sulaiman	Yes
Department of Civil Aviation	YBhg. Dato' Sri Azharuddin Bin Abdul Rahman, Director General	Mr. Ikmal Hakimi Bin Ismail, Director, Airworthiness Sector Captain Jani, Senior Assistant Director, Flight Operations Sector Dr. Zainul Fuad Mohd Wahi, Director, Airport Standards Division	Yes
Economic Planning Unit	YBhg. Dato' Nik Azman Bin Nik Abdul Majid, Director General	Ms. Aruna a/p T. Ramanathan, Principal Assistant Director, Logistics, Competition Policy, MRS & SME	Yes
Ministry of Finance	YBhg. Dato' Asri Bin Hamidon, Under Secretary, Government Investment Companies Division	Ms. Nurhayati Ab Razak, Principal Assistant Secretary, Government Investment Companies Division	Yes

Organization	Invited	Attendees	Attended
Ministry of Tourism, Arts and Culture	YBhg. Datuk Rashidi Bin Hasbullah, Secretary General	YBhg. Datuk Musa Hj. Yusof, Senior Director, International Promotion Division (Asia/Africa)	Yes
Ministry of International Trade and Industry	YBhg. Datuk Seri J. Jayasiri, Secretary General	YBhg. Dato Nik Rahmat Nik Taib, Deputy Secretary General's Office (Industry)	Yes
Department of Statistics	YBhg. Dato' Sri Dr. Mohd Uzir Mahidin, Chief Statistician	Mr. Jamrus Bin Iman, Assistant Director	Yes
Bank Negara Malaysia	YBhg. Tan Sri Muhammad Bin Ibrahim, Governor Mr. Fraziali Bin Ismail Director, Economics Department	Ms. Joanne Tay Rui Ying, Senior Economist	Yes
Malaysia Public Land Transport Commission	Mr. Mohd Azharuddin Bin Mat Sah, Chief Executive Officer	Mr. Ahmad Radhi Maarof, Head of Policy, Planning, Research Division	Yes
MyHSR Corporation Sdn Bhd	YBhg. Dato' Mohd Nur Ismal Bin Mohamed Kamal, Chief Executive Officer	N/A	No
Ministry of Human Resources	YBhg. Dato' Dr. Mohd Gazali Bin Abas, Secretary General	Mr. Azrul Izham B Hamzah, Principal Assistant Secretary, Policy Department	Yes
Talentcorp	Ms. Shareen Shariza Binti Abdul Ghani, Chief Executive Officer	Mr. Yoong Hau Wei, Research, Development, and Policy unit	Yes
AirAsia Berhad	Ms. Aireen Omar, Chief Executive Officer	N/A	No
AirAsia X Berhad	Mr. Benyamin Ismail, Chief Executive Officer	N/A	No

Organization	Invited	Attendees	Attended
Malindo Airways Sdn. Bhd.	Mr. Chandran Rama Muthy, Chief Executive Officer	N/A	No
Raya Airways Sdn. Bhd.	Mr. Mohamad Najib Bin Ishak, Chief Executive Officer	Mr. Mohd Tazhi Borhan, Chief Operating Officer Francis Anthony, Director, Aviation Services	Yes
Malaysia Aviation Group Berhad	Mr. Ignatius Ong, Chief Executive Officer, Flyfirefly Sdn. Bhd. Mr. Aminuddin Zakaria, Chief Executive Officer, MASwings Sdn. Bhd. Capt. Izham Ismail, Chief Executive Officer, Malaysia Airlines Berhad	Mr. Aminuddin Zakaria, Chief Executive Officer Ms. Venice Chong, Vice President, IT & Distribution Mr. Jaffar Derus, Head, Government Relations	Yes
Malaysia Airports Holdings Berhad	YBhg. Datuk Badlisham Bin Ghazali, Managing Director	Mr. Veelayudan Krishnan Nair, General Manager, Research & Planning Mr. Mohd Shukri Shaari Mr. Abdul Rahman Yusuf Mr. Nor Izzamy Abd Aziz	Yes
Senai Airport Terminal Services Sdn. Bhd.	Mr. Mohd Derick Basir, Chief Operating Officer	Mr. Kennedy Ayu, General Manager, Operations	Yes
Pos Asia Cargo Express Sdn Bhd (formerly known as DRB-HICOM Asia Cargo Express Sdn. Bhd.)	Mr. Mohd Azri Hashim, Chief Executive Officer	N/A	No
Aerodarat Services Sdn. Bhd.	Mr. Mohd Nadziruddin Mohd Basri, Chief Executive Officer	Mr. Leong Soon Kong, Chief Financial Officer	Yes

Organization	Invited	Attendees	Attended
Ground Team Red Sdn. Bhd.	Mr. Manimaran Subramaniam, Managing Director	N/A	No
Skypark FBO Malaysia Sdn. Bhd.	Mr. Hanafi Abd Ghani, Senior Manager, Operations	Mr. Hanafi Abd Ghani, Senior Manager, Operations	Yes

Inception Workshop

15 March 2018

Organization	Invited	Attendees	Attended
Ministry of Transport	YBhg. Datuk Seri Hj. Saripuddin Hj. Kasim, Secretary General Mr. Mohd Khairul Adib Abd Rahman, Deputy Secretary General (Policy)	N/A	No
Civil Aviation Authority of Malaysia (formerly known as the Department of Civil Aviation)	YBhg. Dato' Sri Azharuddin Bin Abdul Rahman, Chairman	Mr. Ikmal Hakimi Bin Ismail, Director, Airworthiness Sector Captain Philip Joseph A/L Selvaraju, Senior Assistant Director, Flight Operations Sector Dr. Zainul Fuad Mohd Wahi, Director, Airport Standards Division	Yes
Economic Planning Unit	YBhg. Dato' Nik Azman Bin Nik Abdul Majid, Director General	Ms. Aruna A/P T. Ramanathan, Principal Assistant Director, Logistics, Competition Policy, MRS & SME	Yes
Ministry of Finance	YBhg. Tan Sri Dr Mohd Irwan Serigar Bin Abdullah, Treasury Secretary General YBhg. Dato' Asri Bin Hamidon, Under Secretary, Government Investment Companies Division	Ms. Nurhayati Ab Razak, Principal Assistant Secretary, Government Investment Companies Division	Yes

Organization	Invited	Attendees	Attended
Ministry of Tourism, Arts, and Culture	YBhg. Datuk Rashidi Bin Hasbullah, Secretary General	Mr. Mohamad Taib Ibrahim, Deputy Senior Director, International Promotion Division (Asia/Africa)	Yes
Ministry of International Trade and Industry	YBhg. Datuk Seri J. Jayasiri, Secretary General	Mr. Ahmad Akmal Muhamad, Principal Assistant Director, National Aerospace Industry Coordinating Office	Yes
Department of Statistics	YBhg. Dato' Sri Dr. Mohd Uzir Mahidin, Chief Statistician	Mr. Jamrus Bin Iman, Assistant Director	Yes
Bank Negara Malaysia	YBhg. Tan Sri Muhammad Bin Ibrahim, Governor Mr. Fraziali Bin Ismail, Director, Economics Department	Dr. Zarina Zainal Abidin, Deputy Director, Economics Department Ms. Joanne Tay Rui Ying, Senior Economist Ms. Cheah Wenn Jinn, Economist, Economics Department	Yes
Malaysia Public Land Transport Commission	Mr. Mohd Azharuddin Bin Mat Sah, Chief Executive Officer	Ms. Hazwani Binti Harun, Senior Executive	Yes
MyHSR Corporation Sdn. Bhd.	YBhg. Dato' Mohd Nur Ismal Bin Mohamed Kamal, Chief Executive Officer	N/A	No
Ministry of Human Resources	YBhg. Dato’ Dr. Mohd Gazali Bin Abas, Secretary General	Mr. Azrul Izham B Hamzah, Principal Assistant Secretary, Policy Department	Yes
Talentcorp	Ms. Shareen Shariza Binti Abdul Ghani, Chief Executive Officer	Mr. Yoong Hau Wei, Research, Development, and Policy unit	Yes

Organization	Invited	Attendees	Attended
Iskandar Regional Development Authority	YBhg. Prof. Datuk Ismail Ibrahim, Chief Executive Officer	Mr. Adny Jaffedon Bin Ahmad, Vice President, Economics & Investment	Yes
Northern Corridor Investment Authority	YBhg. Datuk Redza Rafiq, Chief Executive Officer	N/A	No
East Coast Economic Region	YBhg. Datuk Seri Jebasingam Issace John, Chief Executive Officer	N/A	No
Sarawak Economic Development Corporation	YBhg. Tuan Haji Soedirman Haji Aini, General Manager	N/A	No
Sabah Economic Development and Investment Authority	Datuk Dr. Mohd Yaakub Haji Johari, Chief Executive & President	Mr. Kevin George Ukang, Assistant Vice President, Dev. Planning Co-ordination and Evaluation Division	Yes
Sabah Economic Development Corporation	Mr. Pengiran Saifudin Pengiran Tahir, Group General Manager	N/A	No
AirAsia Berhad	Mr. Riad Asmat, Chief Executive Officer	Mr. Zamani Bin Mohd Rafique, Director of Government Relations Ms. Elina Binti Effendi, Group Head of Corporate Development Mr. Spencer Lee, Head of Commercial Mr. Ong Kee Keat, Group Network Planning	Yes
AirAsia X Berhad	Mr. Benyamin Ismail, Chief Executive Officer	N/A	No

Organization	Invited	Attendees	Attended
Malindo Airways Sdn. Bhd.	Mr. Chandran Rama Muthy, Chief Executive Officer	Ms. Andriaty Abdul Rahman, Business Planning Analyst	Yes
Raya Airways Sdn. Bhd.	Mr. Mohamad Najib Bin Ishak, Chief Executive Officer	Mr. Mohd Tazhi Borhan, Chief Operating Officer Mr. Francis Anthony, Director, Aviation Services	Yes
Malaysia Aviation Group Berhad	Mr. Ignatius Ong, Chief Executive Officer, Flyfirefly Sdn Bhd Mr. Aminuddin Zakaria, Chief Executive Officer, MASwings Sdn. Bhd. Capt Izham Ismail, Chief Executive Officer, Malaysia Airlines Berhad	Ms. Venice Chong, Vice President, IT & Distribution Ms. Sufira Ibrahim Vice President, Revenue Management Ms. Normah Din, Chief Financial Officer Mr. Jaffar Derus, Head, Government Relation Mr. Halid Alpi, Manager, Long Term Network Planning	Yes
Malaysia Airports Holdings Berhad	YBhg. Datuk Badlisham Bin Ghazali, Managing Director	Mr. Veelayudan Krishnan Nair, General Manager, Research & Planning Ms. Juanita Armia Mohd Momin, Senior Manager	Yes
Senai Airport Terminal Services Sdn. Bhd.	Mr. Mohd Derick Basir, Chief Operating Officer	Mr. Kennedy Ayu, General Manager, Operations	Yes

Organization	Invited	Attendees	Attended
Pos Asia Cargo Express Sdn Bhd (formerly known as DRB-HICOM Asia Cargo Express Sdn. Bhd.)	Mr. Mohd Azri Hashim, Chief Executive Officer	Mr. Mohammad Yamin Bin Jaafar, Head of Air Freight Sales and Marketing	Yes
Aerodarat Services Sdn. Bhd.	Mr. Mohd Nadziruddin Mohd Basri, Chief Executive Officer	Mr. Sudirman Bin Kushairi, Head, Passenger Services	Yes
Ground Team Red Sdn. Bhd.	Mr. Kevin Chin Thien Tsin, Managing Director	N/A	No
Skypark FBO Malaysia Sdn. Bhd.	Mr. Hanafi Abd Ghani, Senior Manager, Operations	N/A	No
Brahim's SAT Food Services Sdn. Bhd.	Mr. Ainul Hasnizam Abu Hassan, Chief Executive Officer	N/A	No
Sabah Air	Mr. Terry Chan, Chief Executive Officer	N/A	No
Weststar Aviation Services	General Tan Sri Muhammad Ismail Jamaluddin (Rtd), Chief Executive Officer	N/A	No
Hornbill Skyways Sdn. Bhd.	Mr. Miron Kumar Ganguly, Chief Executive Officer	N/A	No

Interim Workshop

28 June 2018

Organization	Invited	Attendees	Attended
Ministry of Transport	YBhg. Datuk Seri Hj. Saripuddin Hj. Kasim, Secretary General	N/A	No
Civil Aviation Authority of Malaysia	Mr. Ahmad Nizar Bin Zolfakar, Chief Executive Officer	N/A	No
Economic Planning Unit	YBhg. Dato' Nik Azman Bin Nik Abdul Majid, Director General	N/A	No
Ministry of Finance	YBhg. Dato' Asri Bin Hamidon, Under Secretary, Government Investment Companies Division	N/A	No
Ministry of Tourism, Arts, and Culture	YBhg. Datuk Rashidi Bin Hasbullah, Secretary General	N/A	No
Ministry of International Trade and Industry	YBhg. Datuk Isham Ishak, Deputy Secretary General (Trade)	N/A	No
Department of Statistics	YBhg. Dato' Sri Dr. Mohd Uzir Mahidin, Chief Statistician	N/A	No
Bank Negara Malaysia	Mr. Shaik Abdul Rasheed Bin Abdul Ghaffour, Assistant Governor Mr. Fraziali Bin Ismail Director, Economics Department	Dr. Zarina Zainal Abidin, Deputy Director, Economics Mr. Mohamed Rizwan Habeeb Rahuman, Senior Economist, Economics Mr. Ahmad Haris Mohd Zukki, Associate Economist, Economics	Yes
Ministry of Human Resources	YBhg. Dato’ Dr. Mohd Gazali Bin Abas, Secretary General	N/A	No

Organization	Invited	Attendees	Attended
Talentcorp	Ms. Shareen Shariza Binti Abdul Ghani, Chief Executive Officer	Mr. Yoong Hau Wei, Research, Development, and Policy unit Ms. Rashmi Menon, Manager, Industry Partnership Ms. Valerie Thomas, Associate, Industry Partnership	Yes
Iskandar Regional Development Authority	YBhg. Prof. Datuk Ismail Ibrahim, Chief Executive Officer	N/A	No
Northern Corridor Economic Region	YBhg. Datuk Redza Rafiq, Chief Executive Officer	N/A	No
East Coast Economic Region	YBhg. Datuk Seri Jebasingam Issace John, Chief Executive Officer	N/A	No
Sabah Economic Development and Investment Authority	YBhg. Datuk Dr. Mohd Yaakub Haji Johari, Chief Executive & President	N/A	No
Sabah Economic Development Corporation	Mr. Pengiran Saifudin Pengiran Tahir, Group General Manager	N/A	No
Sarawak Economic Development Corporation	YBhg. Tuan Haji Soedirman Haji Aini, General Manager	N/A	No
AirAsia Berhad	Mr. Riad Asmat, Chief Executive Officer	N/A	No
AirAsia X Berhad	Mr. Benyamin Ismail, Chief Executive Officer	N/A	No
Malindo Airways Sdn Bhd	Mr. Chandran Rama Muthy, Chief Executive Officer	N/A	No
Raya Airways Sdn. Bhd.	Mr. Mohamad Najib Bin Ishak, Chief Executive Officer	N/A	No

Organization	Invited	Attendees	Attended
Malaysia Aviation Group Berhad	Mr. Ignatius Ong, Chief Executive Officer, Flyfirefly Sdn Bhd Mr. Aminuddin Zakaria, Chief Executive Officer, MASwings Sdn. Bhd. Capt. Izham Ismail, Chief Executive Officer, Malaysia Airlines Berhad	Ms. Sufira Ibrahim, Vice President, Network & Revenue Management Mr. Jaffar Derus, Head, Government Relations Mr. Halid Alpi, Head, Network Planning Mr. Philip See Yew Jin, Group Head, Corporate Strategy and Performance	Yes
Malaysia Airports Holdings Berhad	YBhg. Datuk Badlisham Bin Ghazali, Managing Director	N/A	No
Senai Airport Terminal Services Sdn. Bhd.	Mr. Mohd Derick Basir, Chief Operating Officer	Mr. Kennedy Ayu, General Manager, Operations	
Pos Asia Cargo Express Sdn Bhd (formerly known as DRB-HICOM Asia Cargo Express Sdn. Bhd.)	Mr. Mohd Azri Hashim, Chief Executive Officer	N/A	No
Aerodarat Services Sdn. Bhd.	Mr. Mohd Nadziruddin Mohd Basri, Chief Executive Officer	N/A	No
Ground Team Red Sdn. Bhd.	Mr. Kevin Chin Thien Tsin, Managing Director	N/A	No
Skypark FBO Malaysia Sdn. Bhd.	Mr. Hanafi Abd Ghani, Senior Manager, Operations	N/A	No
Brahim's SAT Food Services Sdn. Bhd.	Mr. Ainul Hasnizam Abu Hassan, Chief Executive Officer	N/A	No
Sabah Air	Mr. Terry Chan, Chief Executive Officer	N/A	No

Organization	Invited	Attendees	Attended
Weststar Aviation Services	General Tan Sri Muhammad Ismail Jamaluddin (Rtd), Chief Executive Officer	N/A	No
Hornbill Skyways Sdn. Bhd.	Mr. Miron Kumar Ganguly, Chief Executive Officer	N/A	No

Final Workshop

12 – 13 November 2018

Organization	Invited	Attendees	Attended
Ministry of Transport	YBhg. Datuk Seri Hj. Saripuddin Hj. Kasim, Secretary General Mr. Mohamad Radzuan Bin Mazlan, Under Secretary, Aviation Division Mr. Mohd Sukhairy Bin Sutam, Principal Assistant Secretary	Mr. Stien Van Lutam, Deputy Under Secretary, Aviation Division Mr. Muhamad Fahdli Bin Zainudin, Principal Assistant Secretary Ms. Nur Nazirah Md Joha, Principal Assistant Secretary Ms. Nurul Hidayah Abd Rahman, Principal Assistant Secretary	Yes
Civil Aviation Authority of Malaysia	Mr. Ahmad Nizar Bin Zolfakar, Chief Executive Officer Dr. Zainul Fuad Mohd Wahi, Director, Airport Standards Division	N/A	No
Economic Planning Unit	YBhg. Dato' Nik Azman Bin Nik Abdul Majid, Director General	Ms. Norasyikin Mahir, Assistant Director, Ports and Civil Aviation	Yes

Organization	Invited	Attendees	Attended
Ministry of Finance	YBhg. Dato' Asri Bin Hamidon, Deputy Secretary General (Investments)	Ms. Nurhayati Ab Razak, Principal Assistant Secretary, Government Investment Companies Division Ms. Nurazlin A. Aziz, Principal Assistant Secretary, Government Investment Companies Division	Yes
Ministry of Tourism, Arts, and Culture	YBhg. Datuk Rashidi Bin Hasbullah, Secretary General	Ms. Khairiah Kamaruddin, Principal Assistant Secretary, Tourism Policy and International Affairs Division	Yes
Ministry of International Trade and Industry	YBhg. Datuk Isham Ishak, Deputy Secretary General (Trade)	Ms. Asniza Basri, Associate Director, National Aerospace Industry Coordinating Office	Yes
Department of Statistics	YBhg. Dato' Sri Dr. Mohd Uzir Mahidin, Chief Statistician	Mr. Zainuddin bin Ahmad, Senior Director, Statistics Services Mr. Muhammad Izzham bin Hamdan, Assistant Director , Statistics Services	Yes

Organization	Invited	Attendees	Attended
Bank Negara Malaysia	Mr. Shaik Abdul Rasheed Bin Abdul Ghaffour, Assistant Governor Mr. Fraziali Bin Ismail, Director, Economics Department Dr. Zarina Zainal Abidin, Deputy Director, Economics Department	Mr. Mohamed Rizwan Habeeb Rahuman, Senior Economist Mr. Kevin Wong Tho Foo, Economist, Economics Department	Yes
Ministry of Human Resources	YBhg. Dato' Dr. Mohd Gazali Bin Abas, Secretary General Dr. Ridzuan Kushairi Bin Mohd Ramli, Principal Asisstant Secretary, Policy Department	N/A	No
Talentcorp	Ms. Shareen Shariza Binti Abdul Ghani, Chief Executive Officer,	Mr. Yoong Hau Wei, Research, Development, and Policy unit Ms. Valerie Thomas, Associate, Industry Partnership	Yes
Malaysia Land Public Transport Agency	Mr. Mohd Azharuddin Bin Mat Sah, Chief Executive Officer	N/A	No
Iskandar Regional Development Authority	YBhg. Prof. Datuk Ismail Ibrahim, Chief Executive Officer	Mr. Mohammed Ashril Ahmad Noordin, Vice President, Economics & Investment	Yes
Northern Corridor Economic Region	YBhg. Datuk Redza Rafiq, Chief Executive Officer	N/A	No

Organization	Invited	Attendees	Attended
East Coast Economic Region	YBhg. Datuk Seri Jebasingam Issace John, Chief Executive Officer	Ms. Nur Aidila Baharin, Senior Executive, Corporate Strategic Planning	Yes
Sabah Economic Development and Investment Authority	YBhg. Datuk Dr. Mohd Yaakub Haji Johari, Chief Executive & President	N/A	No
Sabah Economic Development Corporation	Mr. Pengiran Saifudin Pengiran Tahir, Group General Manager	N/A	No
Sarawak Economic Development Corporation	YBhg. Tuan Haji Soedirman Haji Aini, General Manager	N/A	No
AirAsia Berhad	Mr. Riad Asmat, Chief Executive Officer	Ms. Elina Effendi, Group Head, Corporate Development Mr. Zamani Rafique, Director, Government Relations Mr. Vinod Krishnan, Group Head, Regulatory Projects Ms. Nor Azlina Isa, Group Head, Airport & Infrastructure Development Ms. Jagdeep Kaur, Head, Legal Ms. Shazreeza Kadir, Associate, Group Corporate Development	Yes

Organization	Invited	Attendees	Attended
AirAsia X Berhad	Mr. Benyamin Ismail, Chief Executive Officer	N/A	No
Malindo Airways Sdn. Bhd.	Mr. Chandran Rama Muthy, Chief Executive Officer	Mr. Hariss Abdullah, General Manager, Products Ms. Andriaty Abdul Rahman, Business Planning Analyst	Yes
Raya Airways Sdn. Bhd.	Mr. Mohamad Najib Bin Ishak, Chief Executive Officer	N/A	No
Malaysia Aviation Group Berhad	Mr. Ignatius Ong, Chief Executive Officer, Flyfirefly Sdn Bhd Mr. Aminuddin Zakaria, Chief Executive Officer, MASwings Sdn. Bhd. Capt. Izham Ismail, Chief Executive Officer, Malaysia Airlines Berhad Ms. Khairunnisak Dzun Nurin, Senior Manager, Corporate Communication	Mr. Jaffar Derus, Head, Government Relation Mr. Badrulhisham Zainal, Manager, Aero-political Affairs, Regulatory Affairs	Yes
Malaysia Airports Holdings Berhad	YBhg. Datuk Badlisham Bin Ghazali, Managing Director	Ms. Juanita Armia Mohd Momin, Senior Manager, Research and Planning Mr. Fariz, Manager, Research and Planning	Yes
Senai Airport Terminal Services Sdn. Bhd.	Mr. Mohd Derick Basir, Chief Operating Officer	Mr. Kennedy Ayu, General Manager, Operations	Yes

Organization	Invited	Attendees	Attended
Pos Asia Cargo Express Sdn. Bhd. (formerly known as DRB-HICOM Asia Cargo Express Sdn. Bhd.)	Mr. Mohd Azri Hashim, Chief Executive Officer	N/A	No
Aerodarat Services Sdn. Bhd.	Mr. Mohd Nadziruddin Mohd Basri, Chief Executive Officer	N/A	No
Ground Team Red Sdn. Bhd.	Mr. Kevin Chin Thien Tsin, Managing Director	Mr. Shanmugamnathan Suppiah, Head, Project & Government Relations	Yes
Skypark FBO Malaysia Sdn. Bhd.	Mr. Hanafi Abd Ghani, Senior Manager, Operations	Mr. Raghbir Singh, Chief Operating Officer Ms. Sylvia Wong Mr. Hanafi Abd Ghani, Head, Operations	Yes
Brahim's SAT Food Services Sdn. Bhd.	Mr. Ainul Hasnizam Abu Hassan, Chief Executive Officer	Mr. Ahmad Aizat Ab Rahman, Legal Advisor	Yes
Sabah Air	Mr. Terry Chan, Chief Executive Officer	N/A	No
Weststar Aviation Services	General Tan Sri Muhammad Ismail Jamaluddin (Rtd), Chief Executive Officer	N/A	No
Hornbill Skyways Sdn. Bhd.	Mr. Miron Kumar Ganguly, Chief Executive Officer	N/A	No

APPENDIX 2: MEETING NOTES FROM WORKSHOPS

Introductory Workshop (Government)

28 November 2017

Discussion	Action Item
Welcoming Remarks – Dr Wan Khatina Nawawi, Director (Economics), MAVCOM	
1. Dr Khatina, as moderator, thanked all participants for attending the workshop and provided an introduction to MAVCOM. 2. MAVCOM was established in 2016 as the economic and commercial regulator for the aviation services market. 3. This is a first in a series of workshops to update stakeholders on the progress of the Economic Master Plan.	
Introductory Briefing to the Economic Master Plan for the Malaysian Aviation Sector – Intan Nadia Jalil, Associate Director (Economics), MAVCOM	
1. MAVCOM has been tasked by its Board of Commissioners to develop an economic master plan for the aviation sector. 2. The objectives of the Master Plan are a. To outline the long-term economic direction of the Malaysian civil aviation sector as both a driver and an enabler of the Malaysian economy. b. To synthesize existing policies, plans, and international commitments relevant to the economic development of the sector c. To identify areas of development priority within the civil aviation sector value chain. 3. The Master Plan will be implemented during the period from 2021 – 2030, with a 2-year foundation setting period from 2019 – 2020. The Master Plan is due to be completed in December 2018 where it will be presented to MAVCOM's Board of Commissioners.	

Discussion	Action Item

4. MAVCOM conducted baseline studies on the air transport services sector. The findings are detailed in MAVCOM's Waypoint report which was published in August 2017.

5. Key facts of the Malaysian aviation sector:
   a. 23 airports (6 international) and 18 STOLports
   b. 69 airlines operating at Kuala Lumpur International Airport ("KLIA"), including six Malaysian carriers.
   c. Seven Air Services License holders, 25 Air Services Permit holders, 30 Ground-Handling License holders.
   d. 105 Air Services Agreements ("ASA")

6. Tailwinds for the Malaysian aviation sector include
   a. The growth of Asia's economies
   b. The expansion of Asia's middle-class population
   c. The doubling of global air passenger traffic by 2035 from 2016.

   Headwinds include
   a. Lagging GDP growth projections and productivity growth
   b. Population aging
   c. Global policy uncertainty

7. Growth in the aviation sector is relatively volatile compared to GDP growth. Passenger growth tends to track GDP growth but can be subject to shocks like the MH370 and MH17 incidents.

8. The aviation sector contributed 0.55% of Malaysian GDP between 2010 and 2015. The output multiplier is estimated at 2.0 times based on the Input-Output table of the Malaysian economy published in 2010. The sector accounts for 0.3% of total employment.

9. MAVCOM also conducted studies on connectivity by benchmarking Malaysia's national-level and airport-level connectivity against other countries and airports in the ASEAN region. Malaysia's connectivity ranked fourth among ASEAN countries, whilst KLIA ranked third among ASEAN airports.

Discussion	Action Item
10. MAVCOM will be conducting workshops, briefings and meetings with stakeholders to solicit further input and feedback on the Master Plan. One-on-one briefings with stakeholders will be organized between January and June 2018, followed by an Interim Findings workshop.	
11. The Master Plan will be anchored on enhancing the aviation sector as an enabler for the wider Malaysian economy. This emphasizes the sector's role in enabling multimodal transport to develop Malaysia as a destination for economic, business, trade, and tourism activities.	
12. The Master Plan will explore the availability of appropriate airport infrastructure. This includes the presence of strong airport operator(s), integrated airport terminals, the availability of funding and the appropriate industry structure.	
13. MAVCOM emphasized that these aspects are anchored on having a strong civil aviation-related human capital base and a fair and competitive commercial environment.	
Questions and Comments by Participants on the Introductory Briefing	
1. DCA corrected that there are six international airports, as opposed to eight.	1. MAVCOM accepted the correction and reflected it in the presentation.
2. DCA asked if the Master Plan will cover general aviation activities. DCA noted that DCA and MAVCOM are working with different definitions of the term "aviation" and this needs to be made clear to stakeholders.	2. The Master Plan will be confined to air transport services as defined by the MAVCOM Act. MAVCOM took note of the comment on clarity to stakeholders.
3. MOT commented that Senai Airport should be considered in the Master Plan.	3. MAVCOM took note of the comment to ensure that Senai Airport is considered.

Discussion	Action Item
4. DCA asked if MAVCOM considers the Airports Master Plan by Malaysia Airports Holdings Berhad ("MAHB") in its Master Plan. DCA is of the view that the Airports Master Plan should not be considered as an official policy document.	4. MAVCOM informed the workshop that it is aware of the status of the Airports Master Plan and will conduct its own work on the airports industry structure.
5. DCA pointed out that the phrase "strong airport operator" needs to be properly defined.	5. MAVCOM took note of the importance of clarity and will consult with stakeholders.
6. DCA asked whether the development capacity of airports will be considered in the Master Plan.	6. MAVCOM will consider this in the Master Plan, first by looking at the macro-level industry structure followed by a framework that guides future decisions on capacity growth.
7. DCA sought clarification on the objective of the Master Plan.	7. MAVCOM replied that the objective is to outline a long-term economic development plan for the sector and to identify and synthesize all relevant policies.
8. MOT sought clarification on the definition of "scheduling regime".	8. The scheduling regime includes both slots and filing for scheduled and non-scheduled services.
9. DCA advised MAVCOM that there might be areas where existing policy may be lacking or unclear. MAVCOM may have to provide policy recommendations in these cases.	9. MAVCOM took note of this comment.
10. MOT asked about the role of operating agreements with airport operators and their relation to the development of the aviation sector.	10. MAVCOM explained that operating agreements are signed between the operators and government. The agreements must be guided by principles of a fair and competitive commercial environment.

Discussion	Action Item
11. DCA asked if MAVCOM will recommend a competitive environment in the aviation sector.	11. MAVCOM explained that a study on airports industry structure is being undertaken.
12. TalentCorp asked if the National Aerospace Council will be involved in this Master Plan.	12. MAVCOM explained that it does not have purview over aerospace, hence the National Aerospace Council will not be directly involved.
13. BNM asked if the Master Plan will look at employment aspects within the aviation sector.	13. MAVCOM replied that it will be working closely with DCA, MOHR and TalentCorp on how MAVCOM can contribute towards developing a human capital base for the sector.
14. EPU asked how much emphasis will be placed on the cargo subsector and noted that the presentation focused more on air passengers. EPU points out that Malaysia's freight capacity is underutilized, and that the Government of Malaysia aims to make Malaysia a preferred logistics hub in the region.	14. MAVCOM responded that it will work closely with MOT as the owner of the Logistics and Trade Facilitation Master Plan. Freight connectivity will be studied under the Master Plan as well.
15. EPU raised a concern that the foundation setting period may risk making the Master Plan's recommendations obsolete if the landscape changes within that period.	15. The foundation-setting period is to allow for any prepatory work such as policy changes and infrastructure investments. The Master Plan will be updated as new data and information arise.
16. SPAD asked if there are any numerical targets that the Master Plan hopes to achieve.	16. MAVCOM responded that one view is not to tie the Plan to a hard GDP contribution figure. Where such numerical targets are necessary, MAVCOM will benchmark against high income countries. MAVCOM further explains that it is more important to promote the competitive process.

Discussion	Action Item
17. MOT asked if the Master Plan will consider issues of foreign equity ownership.	17. MAVCOM responded that ownership can be looked at from a public-private perspective and a local-foreign perspective. Trends in ownership such as common ownership across airlines and the influence of small shareholders will be considered in the Master Plan.

Air Connectivity – Fazlin Hassan Naziri, Manager (Economics), MAVCOM

1. Air connectivity is a useful measure to policymakers in answering questions on positioning Malaysia's aviation sector. The study on air connectivity aims to benchmark Malaysia's position vis-à-vis other countries and to identify the determinants of connectivity.

2. MAVCOM's study utilizes the methodology developed by the International Air Transport Association ("IATA"). The index can be calculated as the sum of outgoing seats to all foreign airports, weighted by the relative importance of the destination airports.

3. Malaysia ranks third in ASEAN in terms of scheduled seats and international destinations, behind Thailand and Singapore. Malaysia's connectivity index ranks fourth in ASEAN. KLIA's connectivity score is ranked third in ASEAN, behind Changi and Suvarnabhumi.

4. Connectivity can also be measured in terms of hub traffic, where hub traffic consists of behind traffic (Amsterdam – Kuala Lumpur – Denpasar) and bridge traffic (Sydney – Kuala Lumpur – Doha – Beirut). KLIA has the highest number of hub traffic consisting of both international and domestic transfers. Changi has the highest volume of international hub traffic.

5. Factors that influence connectivity include the number of airports, the number of viable connections, the geographical position of the country and size of the market, among others.

Discussion	Action Item
6. The next steps in the study of connectivity include measuring hub connectivity in terms of timetable coordination in the airports and cargo connectivity.	

Questions and Comments from Participants on Air Connectivity

1. SPAD asked a question on whether the study includes measuring the potential economic gains resulting from an increase in connectivity and if capacity is available to enable further improvements in connectivity.	1. MAVCOM responded that the gains from improved connectivity have not yet been estimated. Airport capacity is available in selected airports.
2. MOTAC asked about the exclusive focus on KLIA in the study and made a point that other regional airports like Penang and Senai play a key role in promoting regional tourism. Some of these airports are limited by infrastructural limitations. MOTAC hopes that infrastructural development will be considered in the Master Plan. DCA commented that care should be taken when comparing Malaysia's aviation sector with other countries since different countries have different network characteristics. Opening up airports to international flights involves substantial infrastructure investments.	2. MAVCOM replied that the current study focuses on the busiest airport in each ASEAN country, and took note of the comment on the focus on infrastructural development.
3. MOTAC highlighted a case where tourists from India had to pay a visa fee of RM1,800 when transiting between KLIA-T1 and KLIA-T2 due to a lack of airside transit facilities. MOTAC highlighted its cooperation with Hyderabad Airport in implementing seamless transit to improve the passenger experience.	3. MAVCOM took note of the point and agreed that this issue highlights the importance of coordinating policy across government bodies and agencies.

Air Services Agreements – Melati Abdul Hamid, Senior Manager (Economics), MAVCOM

1. Subsection 17(3) of the Malaysian Aviation Commission Act 2015 states that MAVCOM shall have regard to any international agreement to which Malaysia is a party. International agreements are internationally binding and it is important to ensure that domestic law and policy is in line with Malaysia's international obligations.	

Discussion	Action Item
2. This review of Malaysia's ASAs aims to identify any gaps between Malaysia's existing international commitments and existing laws or policies, and to ensure alignment between Malaysia's position and strategy in negotiating the ASAs in its laws, policies and plans for the aviation sector. 3. ASAs cover a wide range of economic issues including air traffic rights and market access, charters, tariffs and competition policy, among other issues. 4. Malaysia currently has ASAs with 105 countries. These consist of 50 restricted ASAs, 52 unrestricted ASAs (also known as Open Skies Agreements), and 3 Hybrid ASAs. 5. Malaysian carriers currently utilize 25 ASAs. The highest concentration of flights is to ASEAN countries, China, India and Australia. The peak utilization of Malaysia's ASAs was in April 2000, where Malaysian carriers provided direct connectivity to 44 countries. Foreign carriers utilising the ASAs into Malaysia provide direct connectivity to 37 countries. 6. ASAs with ASEAN countries are part of ASEAN's ambition of creating an ASEAN Economic Community, a key component of which is the ASEAN Single Aviation Market ("ASEAN-SAM"). ASEAN-SAM encompasses economic elements such as market access and technical matters of safety and security. All ASEAN agreements are currently fully ratified, although some countries such as Indonesia have reserved the right to restrict access to their markets. 7. The Kuala Lumpur Transport Strategic Plan aims to work towards a more efficient and competitive air transport market and strengthen engagement with dialogue partners. Negotiations between ASEAN and the EU, India, Japan and South Korea are at various stages of progress.	

Discussion	Action Item
8. Besides ASAs, there are also other international obligations such as WTO obligations. Air Traffic Rights are exempted from the General Agreement on Trade in Services ("GATS") but other sectors such as maintenance and repair, marketing and reservation systems are covered.	
9. The main obligations under GATS are the Most Favoured Nation obligation, National Treatment, and positive listing. Malaysia has not made any specific commitments on air transport services in the GATS schedule.	

Questions and Comments from Participants on Air Services Agreements

1. MOTAC asked if the study considers foreign carriers utilising their rights to come to Malaysia. For example, no Indian carriers are utilising their rights to fly into Malaysia.	1. MAVCOM replied that the current analysis focuses on outbound connectivity and how Malaysian carriers utilize their allocated rights. Inbound connectivity is affected by other factors besides ASAs.
2. MOTAC asked about the role of maintenance and repair operations ("MRO") in the Master Plan.	2. MAVCOM responded that the definition under the MAVCOM Act does not include MRO activities.
3. MOTAC sought clarification on the definition of "international commitments" in the context of this review.	3. MAVCOM replied that the term "international commitments" is used in the general form, referring to any bilateral, multilateral, and plurilateral agreements that are binding on Malaysia.
4. MOTAC pointed out that there is a gap between carrying passengers and promoting Malaysia as a destination. Airlines are focused on the former, but this does not necessarily mean the passengers end their journey in Malaysia.	4. MAVCOM took note of the comment.

Discussion	Action Item
Concluding Remarks – Dr Wan Khatina Nawawi, Director (Economics), MAVCOM	
The moderator thanked all attendees for attending and summarized key points of the discussion. MAVCOM will circulate meeting notes to all attendees. Attendees are welcome to suggest corrections and amendments to the notes.	MAVCOM will prepare meeting notes and distribute them to attendees.

Introductory Workshop (Industry)

28 November 2017

Discussion	Action Item

Welcoming Remarks – Dr Wan Khatina Nawawi, Director (Economics), MAVCOM

1. Dr Khatina, as moderator, thanked all participants for attending the workshop and provided an introduction to MAVCOM.

2. MAVCOM was established in 2016 as the economic and commercial regulator for the aviation services market.

3. This is a first in a series of workshops to update stakeholders on the progress of the Economic Master Plan.

Introductory Briefing to the Economic Master Plan for the Malaysian Aviation Sector – Intan Nadia Jalil, Associate Director (Economics), MAVCOM

1. MAVCOM has been tasked by its Board of Commissioners to develop an economic master plan for the aviation sector.

2. The objectives of the Master Plan are
   a. To outline the long-term economic direction of the Malaysian civil aviation sector as both a driver and an enabler of the Malaysian economy.
   b. To synthesize existing policies, plans, and international commitments relevant to the economic development of the sector
   c. To identify areas of development priority within the civil aviation sector value chain.

3. The Master Plan will be implemented during the period from 2021 – 2030, with a 2-year foundation setting period from 2019 – 2020. The Master Plan is due to be completed in December 2018 where it will be presented to MAVCOM's Board of Commissioners.

4. MAVCOM conducted baseline studies on the air transport services sector. The findings are detailed

in MAVCOM's Waypoint report which was published in August 2017.

5. Key facts of the Malaysian aviation sector:
   a. 23 airports (6 international) and 18 STOLports
   b. 69 airlines operating at Kuala Lumpur International Airport ("KLIA"), including six Malaysian carriers.
   c. Seven Air Services License holders, 25 Air Services Permit holders, 30 Ground-Handling License holders.
   d. 105 Air Services Agreements ("ASA")

6. Tailwinds for the Malaysian aviation sector include
   a. The growth of Asia's economies
   b. The expansion of Asia's middle-class population
   c. The doubling of global air passenger traffic by 2035 from 2016.

   Headwinds include
   a. Lagging GDP growth projections and productivity growth
   b. Population aging
   c. Global policy uncertainty

7. Growth in the aviation sector is relatively volatile compared to GDP growth. Passenger growth tends to track GDP growth but can be subject to shocks like the MH370 and MH17 incidents.

8. The aviation sector contributed 0.55% of Malaysian GDP between 2010 and 2015. The output multiplier is estimated at 2.0 times based on the Input-Output table of the Malaysian economy published in 2010. Multipliers derived in this manner are more robust compared to other estimates that may be in circulation. The sector accounts for 0.3% of total employment. Compensation of employees constitutes 59% of the aviation sector.

9. MAVCOM also conducted studies on connectivity by benchmarking Malaysia's national-level and airport-level connectivity against other countries and airports in the ASEAN region. Malaysia's connectivity ranked fourth among ASEAN countries, whilst KLIA ranked third among ASEAN airports.

Discussion	Action Item
10. MAVCOM will be conducting workshops, briefings and meetings with stakeholders to solicit further input and feedback on the Master Plan. One-on-one briefings with stakeholders will be organized between January and June 2018, followed by an Interim Findings workshop.	
11. The Master Plan will be anchored on enhancing the aviation sector as an enabler for the wider Malaysian economy. This emphasizes the sector's role in enabling multimodal transport to develop Malaysia as a destination for economic, business, trade, and tourism activities.	
12. The Master Plan will explore the availability of appropriate airport infrastructure. This includes the presence of strong airport operator(s), integrated airport terminals, the availability of funding and the appropriate industry structure.	
13. MAVCOM emphasized that these aspects are anchored on having a strong civil aviation-related human capital base and a fair and competitive commercial environment.	
Questions and Comments by Participants on the Introductory Briefing	
1. A representative from MAHB asked about the relationship between the Master Plan and the National Transport Policy.	1. MAVCOM replied that it is involved in the work on NTP and will ensure that the Master Plan is aligned with the policies laid out in the NTP.
2. A representative from MAHB asked if the definition of "infrastructure" included land and mentioned the need for engagement with state governments and regional development authorities. He further mentioned the development of airspace and its implications for the Master Plan.	2. MAVCOM replied that land issues are partially covered under operating agreement negotiations. MAVCOM will also engage with state and regional authorities throughout the process. Airspace matters are under the jurisdiction of DCA, and

Discussion	Action Item
	MAVCOM will consult closely with DCA.
3. A representative from MASwings stated that there is pressure from governments to run routes that are not commercially viable on their own. He mentions the example of routes that are flown under the Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area ("BIMP-EAGA").	3. MAVCOM replied that route development should be anchored on the Master Plan's work on connectivity. MAVCOM's role is not to dictate which airlines should fly which routes. Airlines should make their own commercial decisions.
4. A representative from MASwings raised the issue that some airports that are used for Public Service Obligation ("PSO") routes are insufficiently equipped.	4. MAVCOM responded that the Master Plan will include an airports industry study. MAVCOM acknowledged that the PSO scheme applies to routes rather than airports and that implications of PSO on airports need to be studied.
5. A representative from Aerodarat asked if the cargo subsector will be covered.	5. MAVCOM replied that cargo connectivity is part of the study on air connectivity.
6. A representative from Senai asked if the Master Plan will provide any guidance on the necessity of proposed airports, as many states are requesting for new airports to be built.	6. MAVCOM replied that its study on the airport industry structure will help guide decisions such as the placement of airports.

Discussion	Action Item
7. A representative from MAHB asked if the current number of airports in Malaysia is desirable, considering future transportation developments such as the High-Speed Rail. He stated that there might be a need to review the airport system in Malaysia since the categories of airports (hub vs. feeder, domestic vs. international) are increasingly jumbled.	7. MAVCOM responded that ownership can be looked at from a public-private perspective and a local-foreign perspective. Trends in ownership such as common ownership across airlines and the influence of small shareholders will be considered in the Master Plan. MAVCOM took note of the comment on the need to acknowledge the impact on rival modes of transport, and for proper processes to manage the number of airports.
8. A representative from MAHB commented that more work should be put into estimating the multiplier for the sector, including benchmarking against other countries.	8. MAVCOM explained that the estimated output multiplier of 2.0 times is in line with global norms. It is rare for output multipliers to exceed 3.0 times, and double-digit multipliers should be treated with scepticism. Any alternative estimates should be justified by data and proper methodology.

Air Connectivity – Fazlin Hassan Naziri, Manager (Economics), MAVCOM

1. Air connectivity is a useful measure to policymakers in answering questions on positioning Malaysia's aviation sector. The study on air connectivity aims to benchmark Malaysia's position vis-à-vis other countries and to identify the determinants of connectivity.

2. MAVCOM's study utilizes the methodology developed by the International Air Transport Association ("IATA"). The index can be calculated as the sum of outgoing seats to all foreign airports,

Discussion	Action Item
weighted by the relative importance of the destination airports. 3. Malaysia ranks third in ASEAN in terms of scheduled seats and international destinations, behind Thailand and Singapore. Malaysia's connectivity index ranks fourth in ASEAN. KLIA's connectivity score is ranked third in ASEAN, behind Changi and Suvarnabhumi. 4. Connectivity can also be measured in terms of hub traffic, where hub traffic consists of behind traffic (Amsterdam – Kuala Lumpur – Denpasar) and bridge traffic (Sydney – Kuala Lumpur – Doha – Beirut). KLIA has the highest number of hub traffic consisting of both international and domestic transfers. SIN has the highest volume of international hub traffic. Hub traffic is increasingly being driven by low-cost carriers which carry intra-Asia passengers. 5. Factors that influence connectivity include the number of airports, the number of viable connections, the geographical position of the country and size of the market, among others. 6. The next steps in the study of connectivity include measuring hub connectivity in terms of timetable coordination in the airports and cargo connectivity.	
Questions and Comments from Participants on Air Connectivity	
1. A representative from MAHB asked about the relationship between the strength of the hub carrier and the airport's connectivity. He mentioned the example of Dubai airport and Emirates airlines and the fact that other carriers benefit from this connectivity as well.	1. MAVCOM responded that several studies have shown that there is a home base airline effect, where the strength of the hub carrier of the airport does improve connectivity. The dominant hub carriers tend to have 40% market share, as in the cases of Dubai, London and Singapore.
2. A representative from MAS asked about the main source of hub traffic and commented that the relationship between point-to-point traffic and hub traffic should be considered.	2. MAVCOM replied that the main source of hub traffic is passengers travelling

Discussion	Action Item
	between Asian countries and took note of the comment.
3. A representative from MAHB suggested that the three airlines in KLIA (MAS, AirAsia and Malindo) should coordinate to improve connectivity, in a similar manner to Singapore Airlines, Tiger, and Scoot do in Changi Airport.	3. MAVCOM cautioned participants against engaging in collusive practices and emphasized the role of competition in terms of efficiency and service quality. MAVCOM also emphasized the importance of developing Malaysia as a destination for trade and tourism.
4. A representative from MASwings mentioned the need to ensure that infrastructure is available in rural areas to facilitate tourism. He mentioned the example of Mulu which lacks basic banking facilities and that acts as an impediment to developing the local tourism sector.	4. MAVCOM thanked the representative for the comment and will raise any such gaps with the relevant authorities. In the case of Mulu and banking facilities, Bank Negara can use public service obligation-equivalent tools to provide access to banking facilities in Mulu.
5. A representative from MAS asked about ways to improve the hub connectivity score and MAVCOM's role in improving connectivity.	5. MAVCOM answered that connectivity can be improved by better timetabling so that incoming flights can access more outward connections. MAVCOM will raise potential inefficiencies with industry players for their further action.
Air Services Agreements – Melati Abdul Hamid, Senior Manager (Economics), MAVCOM	
1. Subsection 17(3) of the Malaysian Aviation Commission Act 2015 states that MAVCOM shall have regard to any international agreement to which Malaysia is a party. International agreements are internationally binding, and it is important to ensure that domestic law and policy is in line with Malaysia's international obligations.	

Discussion	Action Item

2. This review of Malaysia's ASAs aims to identify any gaps between Malaysia's existing international commitments and existing laws or policies, and to ensure alignment between Malaysia's position and strategy in negotiating the ASAs in its laws, policies and plans for the aviation sector.

3. ASAs cover a wide range of economic issues including air traffic rights and market access, charters, tariffs and competition policy, among other issues. Whilst air traffic rights and market access were traditionally the primary focus of ASAs, dialogue partners have recently pursued other issues such as ownership and control.

4. MAVCOM reminded the workshop that Part 7 of the MAVCOM Act prohibits anti-competitive agreements, conduct and mergers. In international negotiations, there are demands for more stringent governance of competition law to provide for a level playing field.

5. State aid is also a key consideration as state subsidies are governed in ASAs. For example, the ASEAN ASA provides that state air should avoid adverse effects on fair and equal competition and that any state subsidy complies with transparency obligations.

6. Consumer rights are governed by the Consumer Protection Code and the Montreal Convention. Recent dialogue partners have also increasingly pushed for issues such as environmental and labour standards within ASAs.

7. Malaysia currently has ASAs with 105 countries. These consist of 50 restricted ASAs, 52 unrestricted ASAs (also known as Open Skies Agreements), and 3 Hybrid ASAs.

Discussion	Action Item

8. Malaysian carriers currently utilize 25 ASAs. The highest concentration of flights is to ASEAN countries, China, India and Australia. The peak utilization of Malaysia's ASAs was in April 2000, where Malaysian carriers provided direct connectivity to 44 countries. Foreign carriers utilising the ASAs into Malaysia provide direct connectivity to 37 countries.

9. ASAs with ASEAN countries are part of ASEAN's ambition of creating an ASEAN Economic Community, a key component of which is the ASEAN Single Aviation Market ("ASEAN-SAM"). ASEAN-SAM encompasses economic elements such as market access and technical matters of safety and security. All ASEAN agreements are currently fully ratified, although some countries such as Indonesia have reserved the right to restrict access to their markets.

10. The Kuala Lumpur Transport Strategic Plan aims to work towards a more efficient and competitive air transport market and strengthen engagement with dialogue partners. Negotiations between ASEAN and the EU, India, Japan and South Korea are at various stages of progress.

11. Besides ASAs, there are also other international obligations such as WTO obligations. Air Traffic Rights are exempted from the General Agreement on Trade in Services ("GATS") but other sectors such as maintenance and repair, marketing and reservation systems are covered.

12. The main obligations under GATS are the Most Favoured Nation obligation, National Treatment, and positive listing. Malaysia has not made any specific commitments on air transport services in the GATS schedule.

Discussion	Action Item
Questions and Comments from Participants on Air Services Agreements	
1. A representative from MAHB asked if there are any expiry dates on ASAs.	1. MAVCOM replied that the ASAs typically do not come with expiry dates. If there are renegotiations on ASAs, the new agreement will supersede the old agreement.
2. A representative from MAHB asked about the involvement of airlines in negotiations	2. MAVCOM answered that ASA negotiations are led by MOT. There is usually a consultation process in preparing for the negotiations to solicit feedback from industry players. The government then determines the need for an ASA before commencing negotiations.
Other Questions and Comments from Participants	
1. A representative from MAS asked about MAVCOM's powers in regulating travel portals such as Expedia, since their terms and conditions are not aligned with local regulations such as the Consumer Protection Code, but are based outside Malaysia.	1. MAVCOM replied that the portals may be investigated under Part 7 of the MAVCOM Act if there is any anti-competitive conduct. On the implications on consumer rights, MAVCOM will refer to its Director of Consumer Affairs.
2. A representative from MAHB asked about what happens if assigned ATRs are not utilized	2. MAVCOM replied that unutilized ATRs will be revoked to avoid wastage of rights.
Concluding Remarks – Dr Wan Khatina Nawawi, Director (Economics), MAVCOM	
The moderator thanked all attendees for attending and summarized key points of the discussion. MAVCOM will circulate meeting notes to all attendees. Attendees are	MAVCOM will prepare meeting notes and distribute them to attendees.

Discussion	Action Item
welcome to suggest corrections and amendments to the notes.	

Inception Workshop

15 March 2018

Discussion	Action Items
Welcoming Remarks – Azmir Zain, Chief Operating Officer, MAVCOM	
1. The COO thanked participants for their attendance and introduced the Economic Master Plan for the Civil Aviation Sector ("Master Plan"). The Master Plan will convey the country's long-term vision for the civil aviation sector.	For information.
2. An introductory workshop was held on 28 November 2017 to present the baseline findings of the Master Plan on areas including the economic contribution of the air transport and air connectivity.	For information.
3. The inception workshop will be used to present further output from MAVCOM's research and to solicit feedback from participants on the preliminary views of the master plan.	For information.
Introductory Briefing – Intan Nadia Jalil, Associate Director (Economics), MAVCOM	
Introduction	
1. MAVCOM has been tasked to develop the Master Plan. Prior to this work, there has been a relative paucity of long-term plans for the sector.	For information.
2. The objectives of the Master Plan are: a. To outline the long-term economic direction of the Malaysian civil aviation sector as both a driver and an enabler of the Malaysian economy. b. To synthesize the existing policies, plans, and international commitments relevant to the economic development of the sector. c. To identify areas of development priority within the civil aviation sector value chain.	For information.
3. The Master Plan will be implemented between 2021 and 2030, with a two-year foundation-setting period	For information.

Discussion	Action Items
from 2019 to 2020. The Master Plan is due to be completed in December 2018.	
4. The Master Plan will cover all sub-sectors that fall under MAVCOM's purview as defined by the Malaysian Aviation Commission Act 2015 [Act 771]. These are freight and passenger carriers, aerodromes, and ground handling.	For information.
Air connectivity is strongly linked to economic growth and development	
5. Air connectivity is closely linked to economic growth and development in its facilitation role for international trade and tourism. Cities with a high degree of air connectivity rank highly in global rankings of cities and are more attractive to multinational organizations and corporations.	For information.
6. Airport connectivity relies on the optimal performance and infrastructure of airports. The operational efficiency of airports has a direct impact on the profitability of airlines. Whilst super-connector hubs in the Gulf states and Istanbul have grown at the expense of Asian and European hubs, there are still opportunities for other hubs to capitalize on their niche strengths in airport service quality.	For information.
7. Airport cities, also known as "aerotropolises", such as those at ICN and AMS can have catalytic effects on economic growth. Evidence from Canada, China and the US also indicate strong correlation between airport development and measures of economic activity.	For information.
8. In terms of air connectivity, Malaysia is ranked fourth in ASEAN at the country level, whereas KLIA is ranked third in ASEAN at the airport level. This is due to Indonesia benefiting more from its connections to Malaysia than vice versa and the fact that Indonesia's connectivity is dispersed across multiple hubs. In terms of international hub traffic, KLIA ranks second in ASEAN after SIN.	For information.

Discussion	Action Items
9. Improving air connectivity in Malaysia can be accomplished by considering the following options: a. Promoting Malaysia as a destination for trade and tourism. b. Promoting airlines to fly into Malaysia's primary (KLIA) and secondary hubs (such as BKI and PEN) by developing incentives for foreign airlines. c. Strengthening focus on seamless multi-modal connectivity. Plans for various transportation modes should account for implications on other modes. d. Ensuring that Air Service Agreements ("ASAs") are pursued with connectivity considerations in mind, given that current ASA utilization is relatively low, and they come with commitments relating to competition and regulation.	For information.
10. Strengthening KLIA as a hub is the second pillar of improving connectivity, which involves reinforcing KLIA's role as a master air hub, establishing an airside connection between the two KLIA terminals, and enforcing service-level requirements on ground handlers.	For information.
Optimal Airports Infrastructure to Support Air Connectivity	
11. Despite Malaysia's near-monopoly airports industry structure, there have neither been high returns to airport operators, nor improvement in airport service levels. Additionally, there are limitations on the capabilities of the government and MAHB to provide capexs.	For information.
12. The following options may be considered to address issues relating to airports infrastructure: a. Improving service and performance levels via the quality of service ("QoS") framework and developing objective measurements of airport efficiency. b. Reviewing the airport industry structure, including the potential to segregate commercial and non-commercial airports.	For information.

Discussion	Action Items
c. Developing a National Airports Master Plan to guide the future development of airports.	
Increasing Liberalization Requires Evolution in Regulatory Instruments	
13. There are various regulatory instruments governing the aviation industry. These include general legislation, licensing requirements, public service obligations ("PSO"), and preferential rights shares, among others.	For information.
14. Given the general trend of the global economy towards increasing liberalization, the regulatory infrastructure needs to adapt to this trend.	For information.
15. Certain measures such as foreign equity limits and nationality requirements are incompatible with liberalization. There may be a possibility that these restrictions are gradually lifted via a phased approach.	For information.
16. The Master Plan may also explore amending and eventually abolishing the government's golden share in aviation-related enterprises. Abolishing the golden share can address concerns relating to competition and investors' rights. The government has developed, introduced, and implement more sophisticated regulatory instruments to achieve and protect its policy objectives.	For information.
17. MAVCOM's enforcement of Part VII of Act 771 will gradually transition towards the free competition principle. This is consistent with Malaysia's ASA commitments and the approach of other national competition authorities.	For information.
Building a Human Capital Base for the Civil Aviation Sector	
18. The civil aviation industry needs to be supported by a strong human capital base. MAVCOM proposes to leverage on existing work by TalentCorp and the National Aerospace Industry Coordinating Office ("NAICO"). A preliminary recommendation is to develop a database of the human capital landscape for the sector.	For information.

Discussion	Action Items
Questions and Comments by Participants on the Introductory Briefing	
1. MAHB mentioned that MAVCOM's measurements of air connectivity and the sector's economic contribution should be cross-validated using different methodologies.	1. MAVCOM highlighted that its air connectivity methodology will be peer-reviewed by subject-matter experts. MAVCOM also mentioned that the estimates of the economic contribution of the sector are based on the DOSM's Input-Output tables. These have also been presented in the Introductory Workshop and endorsed by the EPU.
2. MAHB mentioned that previous master plans in the tourism sector need to be updated as the forecasts underlying those plans have proven to be overly optimistic.	2. MAVCOM agreed that master plans should be living documents that are updated as circumstances evolve.
3. MAHB mentioned that the Skytrax rankings cited by MAVCOM may be biased against MAHB, as MAHB is not a member of Skytrax.	3. MAVCOM noted the comment and highlighted that the QoS Framework is being developed as an objective measure of airport quality.
4. MAHB mentioned that internal research showed that incentives have a limited impact on inducing foreign airlines to fly into Malaysia.	4. MAVCOM agreed that economic fundamentals play a larger role than incentives on inducing airlines to fly into Malaysia.
5. MAHB stated that preliminary figures show that KLIA will be ranked the 12th busiest airport for the year 2017. Additionally, MAHB requests that the Master Plan consider the relative merits of full-service carriers ("FSCs") and low-cost carriers ("LCCs").	5. MAVCOM took note of the comments.
6. Senai Airport commended the Master Plan as a good step forward for the aviation industry but highlighted its concern that the Master Plan may overlook developments outside Malaysia that may impact domestic players.	6. MAVCOM took note of the comment.

Discussion	Action Items
7. Senai Airport suggested that the Master Plan should contain an airports policy to guide the development of Malaysia's airport network and to consider allowing airports the freedom to decide on accepting international flights.	7. MAVCOM responded that the Master Plan will recommend the production of a National Airports Master Plan.

Group Presentations: Session 1

Air Connectivity

1. The primary factor that airlines consider when deciding which airports to fly to is yield returns. Given the current low-yield environment, many airlines are deterred from entering the Malaysian market.

2. Attracting FSCs to utilize interlining and code-sharing flights can improve an airports connectivity, whereas LCCs' role is focused on improving point-to-point connectivity with regional airports. There is currently a lack of interlining arrangements between FSCs and LCCs at KLIA, which affects its status as a hub.

3. Foreign airlines should be given more access and freedoms to fly and transit at secondary airports in Malaysia. This can spur economic activity which will in turn attract more international passengers and tourists to these areas.

4. Airside connectivity between the two terminals of KLIA should be improved to provide a seamless connecting experience for passengers transiting between the two terminals. There was also a suggestion to connect KLIA and SZB via land transport, and in between the cargo terminals at KLIA. Concerns were raised regarding security and risk threat with the absence of proper connectivity at the cargo terminals.

MAVCOM took note of the participants' contributions.

Discussion	Action Items

5. Participants broadly agreed that tourism plays a crucial role in attracting airlines to fly into Malaysian airports. MOTAC has been collaborating with various partners such as airlines and airports to promote tourism in Malaysia. Future steps may include increasing the offering of Malaysia's tourism products and increasing the logistical capacity of the tourism sector. Additionally, visa requirements play a key role in attracting tourists, such as in the case of China, where tourist visa requirements were recently relaxed resulting in an increase number of Chinese tourists into the country.

6. Participants also broadly agreed that multi-modal transportation was important in improving Malaysia's domestic and international connectivity. Other transportation modes, such as railways and buses, should complement the air transport to improve accessibility to Malaysia's various regions.

Airport Infrastructure

7. Participants broadly agreed that airport facilities and service levels should be improved and subject to appropriate regulation.

8. Liberalization can be considered to improve the efficiency of airport operations due to the introduction of competition into the market.

9. There are currently too many airports in Malaysia. Each airport should be able to identify its unique value proposition. Some airports may be uniquely suited for general aviation activities, whereas others may be used as aviation academies.

10. The current hub-and-spoke model should be revisited, given that many airports in Malaysia are now seeking "international airport" status.

11. Airports should work on reducing their minimum connecting time so that airlines can provide more connecting opportunities for passengers.

Discussion	Action Items
12. Airports should be encouraged to adopt digitization and automation to improve airport operations. This will provide higher quality services for airlines and passengers.	

Group Presentations: Session 2

Regulatory and Commercial Environment

1. Liberalization of foreign equity ownership can be a mechanism to embrace the ASEAN Single Aviation Market, with benefits to the sector's competitiveness, national air connectivity, airports, and passengers. Liberalization will ensure that foreign capital can be invested into local aviation markets if domestic capital is insufficient.	MAVCOM took note of the participants' contributions.
2. The proposal to review the government's golden shares in aviation-related enterprises is consistent with the development in the wider economy where the government is gradually divesting its shares in government-linked companies. However, some participants mentioned that the golden share is a necessary regulatory instrument for the government to achieve certain policy objectives, such as the continuous operations in PSO routes.	
3. MAVCOM's regulatory policies should ensure the sustainability of the industry and prevent practices such as predatory pricing.	
4. Some participants were of the view that ensuring a conducive supply-chain ecosystem is more important to the performance of the industry, rather than issues of foreign ownership.	
5. The governance and management quality of industry players should be strengthened, and key appointments should be based on merit. This is to ensure sound decision making among industry players.	

Discussion	Action Items
Human Capital Development	
6. Initiatives to develop human capital for the sector should be led by the private sector with government support.	
7. Specialization at an early stage of education can restrict the career choices available to graduates upon graduation. Professional training should be used instead to provide specialized knowledge. The importance of on-the-job training should also be emphasized.	
8. There has been a decline in students in Science, Technology, Engineering, and Mathematics ("STEM"). Higher education institutions can play a role in encouraging more students to study in these fields. Industry player should also collaborate with higher education institutions to develop industry-specific courses to ensure that graduates are relevant to the industry.	
9. Policymakers should rely on industry data in their research and policy work. This includes human capital profiling of the industry to identify the landscape of human capital.	
10. The outflow of talent to advanced economies can be mitigated via competitive remuneration packages.	
11. The Ministry of Human Resources and the Ministry of Education should collaborate to standardize the education and qualifications required for aviation-related technical courses.	
Concluding Remarks – Dr. Wan Khatina Nawawi, Director (Economics), MAVCOM	
1. MAVCOM thanked all attendees for attending and summarized key points of the discussion. MAVCOM informed participants that they will receive the meeting minutes for this workshop in a few weeks. One-on-one engagements with stakeholders can be arranged on request.	1. MAVCOM will prepare meeting notes and distribute them to participants.

Discussion	Action Items
2. A workshop to discuss the interim draft of the Master Plan is scheduled to be held in July 2018. Participants in the current workshop are encouraged to attend the interim workshop.	2. MAVCOM will invite participants for the interim workshop, scheduled for early July 2018.

Interim Workshop

28 June 2018

Discussion	Action Items
Introductory Briefing	
1. Dr. Wan Khatina Nawawi ("DWKN") thanked participants for attending the workshop. The Interim Workshop is the third workshop on the Economic Master Plan for the Malaysian Civil Aviation Sector ("EMP") following the previous Introductory and Inception workshops. A final workshop is scheduled for November 2018. The current workshop will recap the takeaways from the previous workshop and introduce new points for discussion.	For information
2. Intan Nadia Jalil ("INJ") gave a briefing on the format of the workshop where each group will focus on their assigned topics. MAVCOM staff are assigned to each table to facilitate the discussions and answer any questions regarding previous research. The workshop will end with a plenary discussion where each group presents the key takeaways from their discussion.	For information.
3. MAVCOM has been tasked by its Board of Commissioners, in line with MAVCOM's role as an economic policy advisor to the MOT, to develop the EMP for the Civil Aviation Sector. The EMP will form a set of recommendations that will be tabled to MOT as MAVCOM is not the principal policymaker for the aviation sector.	For information.
4. The three objectives of the EMP are: a. To outline the long-term economic direction of the civil aviation industry b. To synthesize existing policies, plans, and international commitments c. To identify areas of development priority	For information.
5. The EMP will be implemented between 2021-2030. The period between 2019 and 2020 will be a foundation setting period for any regulations, agencies, or policies that need to be put in place before the implementation.	For information.

Discussion	Action Items
6. The EMP will only cover areas within the boundaries of Act 771. However, the EMP will give due recognition to the linkages with other perspectives such as technical, safety, and security. The EMP will also be aligned with the key thrusts of the latest available draft of the National Transport Policy ("NTP"), including multi-modal connectivity and optimal investments in transport infrastructure.	For information.
Key Takeaways from the Inception Workshop	
7. The Inception Workshop for the EMP was held on the 15 March 2018. Participants broadly recognized that air connectivity is heavily reliant on the underlying economic base of the country. This sets bounds on what the EMP can achieve, as policies regarding the trade and tourism sectors also play a key role in developing the aviation sector and air connectivity.	For information.
8. Participants also broadly agreed that establishing airside connectivity between the two terminals of KUL is a low-hanging fruit that should be pursued. The workshop also discussed the need for SZB's Skypark project to develop the Maintenance, Repair and Overhaul ("MRO") services sector and to improve connectivity between SZB and KUL.	For information.
9. The workshop also agreed on the need to develop a comprehensive Airport Master Plan to guide the development of the airports infrastructure in Malaysia. The workshop also broadly agreed that there are too many airports in Malaysia and some of them may need to be rationalized.	For information.
10. The workshop saw diverse views on liberalization. Whilst liberalization may lead to benefits such as enhanced competition and capacity, there were concerns raised regarding the ownership of strategic assets such as aircraft.	For information.

Discussion	Action Items
11. The workshop agreed that human capital development initiatives should be industry-driven, with some scope for coordination at the industry level. Human capital initiatives should develop a long-term strategic view, including a database on the human capital requirements of the sector.	For information.
Presentation on the EMP	
12. The framework for the EMP has been simplified from the previous draft. Whilst the underlying vision for the EMP remains to develop Malaysia as a top destination for economic activity, the underlying foundation and primary goal of the EMP is to develop strong mobility and air connectivity.	For information.
13. The EMP will be based on three pillars, namely: a. Availability of appropriate airport infrastructure b. Strong civil aviation-related human capital base c. Fair and competitive commercial environment	For information.
14. Underlying these three pillars is the regulatory roadmap; the set of principles on which MAVCOM operates. These are: a. Phased and orderly approach to liberalization b. Application of fair competition principles c. Optimal economic regulatory regime d. Strong consumer protection regime e. Data-driven and robust performance measurement and monitoring	For information.
Air Connectivity	
15. MAVCOM's research shows that Malaysia is ranked fourth in ASEAN, whilst KUL is ranked third in ASEAN at the airport level. Air connectivity is measured as a function of passenger volumes and the relative importance of connected destinations.	For information.

Discussion	Action Items
16. Malaysia's domestic carriers carry a majority (62.8%) of outbound international traffic. Whilst this is similar to other ASEAN countries such as Singapore, Malaysia's traffic tends to be dominated by LCCs, whereas Singapore's traffic is largely carried by FSCs. The dominance of different business models in the two countries has implications for air connectivity.	For information.
17. Options to promote air connectivity include: a. **To promote Malaysia as a top destination for tourism and trade, and the creation of new routes** Ensuring that air route development is coordinated with tourism plans such as the Tourism Transformation Plan 2.0 and the National Tourism Policy, as well as trade-related policies such as the Logistics and Trade Facilitation Masterplan, with special reference to KLIA's status as a "master air hub". b. **Ensuring Multi-modal and Seamless Connectivity** Development plans for one mode of transport should account for the impact and connectivity with other modes of transport, such as considering last-mile connectivity to and from airports, the impact of rail developments on aviation etc. c. **Increase the number of carriers flying in and out of Malaysia** The EMP should consider ways to ensure that Air Services Agreements ("ASA") are linked to connectivity considerations, in light of the low level of utilization of currently signed ASAs.	For information.

Discussion	Action Items
The Availability of Airports Infrastructure and Funding	
18. There is a recognition that Malaysia's airports industry structure is a near monopoly structure. Whilst the operating agreement lays the responsibility for development capex on the government of Malaysia, both the government and Malaysia Airport Holdings Berhad ("MAHB") face financial constraints in their ability to provide for airport development capex. In light of this, the EMP will also explore ways to seek gains in operational efficiency so that the existing infrastructure can be utilized more efficiently.	For information.
19. Some measures undertaken to improve the performance and service levels at Malaysia's airports are as follows: a. To implement the Quality of Service ("QoS") Framework. The QoS Framework will serve as an objective measurement of service standards to inform future regulation and policy. b. To improve the performance standards of ground handling companies by building on the findings of MAVCOM's ground handling audit. c. To establish an airside connection between the two terminals of KUL, so as to better facilitate self-connections and to better utilize the spare capacity available at klia2.	For information.
20. To address the funding constraints on capex, the EMP will recommend that a review of the airports industry structure be undertaken. The industry review should demarcate commercial and non-commercial airports, as well as identify the party responsible for funding those airports. The EMP will also recommend the creation of a National Airports Master Plan to provide direction for the development of airports infrastructure in Malaysia.	For information.

Discussion	Action Items
Human Capital Development	
21. The primary challenge for the development of long-term strategies for human capital development is the lack of comprehensive data on the employment opportunities, occupations, and skills in the aviation industry. The EMP will recommend the development of a database to fill this gap. Future strategies for human capital development can then be based on sound evidence.	For information.
Conclusion	
22. The EMP is designed to be a long-term plan. Whilst some of these options may not be feasible in the immediate future, it is nonetheless important to lay the foundations so that these options can be pursued in the medium to long-term.	For information.

Plenary Session Discussions

Group 3: Airport Service and Performance levels

1. Group 3 noted that schemes regulating airport service levels like the QoS Framework have been applied elsewhere in the world. The QoS Framework can be effective since it ties service-level performance to financial incentives and penalties. The key challenge is to translate QoS obligations to all service providers within the terminal, given that many of these service providers are not directly under the purview of the airport operator. One solution may be to incorporate QoS considerations into Conditions of Use agreements so that QoS penalties can be translated to the relevant service providers, where necessary.	1. MAVCOM took note of the group's contribution.

Discussion	Action Items
2. Recognizing that KLIA and klia2 were designed as if they were two separate airports, MAHB is adopting a phased approach to establish connectivity between the two terminals under the Runway to Success 2020 plan. The phases are: a. Phase I- Landside connectivity (Completed: July 2018) b. Phase II- Baggage connectivity (August 2018) c. Phase III- Passenger and Baggage connectivity (November 2018)	2. MAVCOM took note of the group's contribution.
3. The ground handling sub-segment is subject to intense competition between the two major players in the market. This has led to small margins that are deemed to have caused underinvestment. It should be noted that any attempt to price fixing may be in contravention of competition law provisions. To improve ground handling services, companies need to invest in the latest available technology to improve their operational efficiency. Given the fragmented nature of the market, some industry consolidation may be necessary to ensure sufficient margins to invest.	3. MAVCOM reminded participants that any attempt at collusion contravenes the MAVCOM Act. Ground handlers should note that their sub-segment is regulated relatively lightly compared to aerodromes and airlines. Players in the market should explore ways of improving efficiency rather than seek to circumvent market competition.
4. Dr. Bush stated that the problem with ground handling service levels is endemic and tends to get worse the busier the airport. Airport operators have tried various methods to overcome this problem, such as Gatwick's incentive fund for performance levels. Embedding minimum service and equipment standards within the Conditions of Use may also be helpful in maintaining service levels whilst avoiding collusion. Dr. Bush suggests that the ground handling sub-segment may be overly competitive and that this has negative externalities to the airport and airline.	4. MAVCOM took note of Dr Bush's comments.

Discussion	Action Items
5. The representative from CAAM raised the question of which party should be responsible for enforcing these service level standards. Whilst the authority lies with MAVCOM, MAVCOM may consider delegating the functions of day-to-day monitoring and enforcement to the airport operator since it has easy access to the airport facilities. This is to close the gap between enforcement and authority, as MAHB does not have the power to revoke licenses for non-performance even though it is well placed to monitor the ground handlers' performance.	5. MAVCOM will further study the options available for delegation of function and will consult with the relevant stakeholders.
Group 4: Airport Funding Constraints	
1. The group agreed that a National Airports Master Plan is needed to review the airports industry structure. The group broadly agreed that the airport network may be needed for now given the need for cross-subsidiation to fund non-commercial airports. In the long term, some airports may be rationalized if they are no longer feasible.	1. MAVCOM emphasized the need to comply with ICAO's best practices on pre-funding (tied to a specific project, cost-based, and time-limited).
2. The CAAM expressed the view that the function of each airport should be identified before determining the need for development and operational capex. For example, is it necessary for all airports to have International Civil Aviation Organization ("ICAO")-compliant Custom, Immigration and Quarantine ("CIQ") facilities, and if so which party should bear the burden of funding these facilities.	2. MAVCOM took note of the group's contribution.
3. The Operating Agreement ("OA") should be changed so that responsibility for the capex funding of airports lies with MAHB. The Government of Malaysia ("GoM") can continue to fund Short Take-off and Landing Airports ("STOLports") that are maintained for non-commercial purposes.	3. MAVCOM took note of the group's contribution.
4. In terms of operational efficiency, the group agreed that airport operators should explore ways for existing assets to be utilized more efficiently, such as by upgrading systems and processes.	4. MAVCOM took note of the group's contribution.

Discussion	Action Items
5. The group had diverse views on whether airport charges should be uniform across all airports. Whilst uniform charges may potentially reduce the burden on larger airports to cross-subsidize other airports within the network, this may constrain the ability of smaller airports to adjust their charges to pursue commercial objectives.	5. MAVCOM responded that the RAB model will allow for differentiated charges across different tiers of airports.
6. The domestic Passenger Service Charges ("PSC") cap is deemed to be uneconomically low. A convergence towards commercially viable levels should be gradually phased in.	6. MAVCOM took note of the group's contribution.
7. The group wished to seek clarification on the powers of the GoM's golden share in MAHB. Representatives from the MOF and EPU were of the view that there is no reason to abolish the golden share, since the golden share does not confer veto powers, but merely the power to make appointments to the board.	7. MAVCOM stated that the golden share was intended to ensure safeguards post-privatization. Whilst this may have been warranted in the past due to the underdeveloped regulatory landscape, the GoM currently has many other regulatory instruments, International experience shows that golden shares may lead to potential anti-competitive issues due to state preferential treatment. The golden share also provides its holder with an implied veto power that may be a deterrent to potential investors, even if it has not been used before.
8. The representative from SATSSB stated that their concession agreement differs from MAHB's OA in that SATSSB is responsible for funding its own airport capex. The representative expressed a preference for MAHB's model where capex is funded by the government.	8. MAVCOM took note of the participants' comments.

Discussion	Action Items
9. Dr. Harry Bush expressed the view that the consultation process established by the regulated asset base ("RAB") regime should come with clear guidelines and processes so that parties do not start arguing over the process at the expense of discussing the substantive issue of airport investments. There is also a need for a common understanding between MOT and MAHB on relevant areas of authority. The two parties should identify a threshold under which MAHB can be fully autonomous to undertake capex funding and above which it should seek MOT approval. If this threshold is not made clear, there is a risk that the consultation would be no different from the previous regime of seeking approval from MOT for everything.	9. MAVCOM took note of Dr Bush's comments.
10. The representative from AirAsia suggested that the airport user fee should be earmarked for airport capex.	10. MAVCOM clarified that user fees collected need to be returned to the Consolidated Fund.
11. AirAsia's representative also questioned whether the RAB regime will be cost-based for the entire airports network as opposed to individual airports.	11. MAVCOM responded that a RAB regime is not mutually exclusive with cross-subsidisation in an airports network.
12. The representative from CAAM expressed the view that in terms of prioritization, the Airports Master Plan should be prioritized to identify the function of each airport to provide guidance to future airport developments and investments. It is also important to consider the expectations that stakeholders have for different airports. However, Dr. Volodymyr Bilotkach expressed his view that the market (airlines) should be allowed to determine which airports they will operate international flights from, rather than the government placing restrictions on which airports should or should not accept international operations.	12. MAVCOM took note of Dr. Bilotkach and the participants' comments.

Discussion	Action Items
Group 1: Strengthening Malaysia's Economic Base	1. MAVCOM took note of the group's contribution.
1. The group highlighted that Malaysia is not an attractive destination for tourism and trade as opposed to Thailand and Singapore. This has led to the growth of only low-yield passengers and the increase in demand for low-cost carriers ("LCC"). Lack of interest from foreign carriers has also contributed to the decreasing quality of services at the airports.	
2. Therefore, the main objective is to develop Malaysia as a top tourist and trade destination. The group notified that seamless coordination between multiple government agencies and state governments is crucial to achieve this objective. The state governments may not share the same views as the federal government, which hinders coordination in efforts to develop tourism products.	2. MAVCOM took note of the group's contribution.
3. MOTAC and the state governments need greater collaborations to develop tourism products that are aligned with the tourism policies i.e. National Tourism Policy, National Eco-Tourism Policy. The Malaysia Quality Tourism Assurance will also be strengthened to increase tourism standards and attract high-yield tourists.	3. MAVCOM took note of the group's contribution.
4. With regards to trade, Malaysia is losing its potential cargo traffic to SIN due to inadequate capacity and connectivity. Connectivity loss is due to the pricing disadvantages i.e. hidden transaction costs. Promoting greater price transparency will help Malaysia regain competitiveness.	4. MAVCOM took note of the group's contribution.
5. The development of multimodal transport, such as rail system, has implications for certain airports, for example, KUA, MKZ and IPH. Air passengers will substitute to land transport for short-distance travels in favour of better connectivity from the stations to the nearby cities. The group also highlighted the importance of last-mile connectivity with respect to air transport, which is not taken into consideration in the planning stage of new developments.	5. MAVCOM took note of the group's contribution.

Discussion	Action Items
6. CAAM expressed the view that capex investments into airports should be proportionate to the strength of the tourism products in the region. This is to avoid excessive investments in airports that do not attract large volumes of passengers. Examples of these include TGG's new runway.	6. MAVCOM took note of the participants' comments.
7. MOTAC (via MAVCOM) highlighted that the National Tourism Policy—together with National Ecotourism Plan—will succeed the previous plan which expires in 2020. It was also highlighted that federal and state government should align their priorities and preferences for the tourism industry, to ensure the implementation of the tourism activities are as planned.	7. MAVCOM took note of the participants' comments.
Group 2: Air Connectivity and the Presence of Foreign Carriers	
1. The group generally agreed that attempts should be made to make Malaysia a more attractive tourist destination. In respect to this, MOT, MOTAC, airlines, and airports should work together to achieve this target.	1. MAVCOM took note of the participants' comments.
2. Dr. Bilotkach suggested that there should be a proposal to break up the current airport system (i.e. as a network) in the medium to long-term to promote competition among the airports, which would allow each airport to provide incentives to seek partnership with airlines, which can increase connectivity.	2. MAVCOM took note of Dr. Bilotkach's comments.

Discussion	Action Items
3. A representative from AirAsia commented that the government should liberalize equity restrictions in domestic airlines by allowing majority foreign ownership. On protecting Malaysia's national carrier, this can be done by protecting Malaysia Airlines ("MAG") through an Act, similarly to Qantas in Australia.	3. MAVCOM queried on whether there is a timeline for liberalising airports and airlines, to which MOT responded that they have not set a timeline to this and is open to suggestions, particularly if there are any case studies or research that support this. MAVCOM emphasized the long-term nature of the EMP and that this measure may be feasible in the long run.
4. A representative from the CAAM mentioned that the granting of cabotage (i.e. 9th freedom rights) is something that is difficult to undertake at present due to lack of commitment from other countries, including ASEAN member states.	4. MAVCOM replied that cabotage can be considered in the long term under the EMP. Malaysia can also consider granting it unilaterally in the interim.
5. Another step that can be taken to increase connectivity in Malaysia is to switch the regime of airline ownership from substantial owner to principal place of business. On the latter, a representative from AirAsia replied that there is no clear definition on it, as a previous case involving Jetstar in Hong Kong suggests. If Malaysia is to switch the regime to principal place of business, it should be clearly defined to avoid any ambiguity.	5. MAVCOM agreed with the importance of clearly defining the definition of principal place of business.
6. A representative from MAVCOM queried if liberalization of ground handlers would also be considered. A representative from AirAsia responded that such a move would be welcomed, and foreign ownership can first be extended to ASEAN nationals as a way to champion the ASEAN Single Aviation Market.	6. MAVCOM thanked and noted the participant's response.

Discussion	Action Items
Group 5: Human Capital	
1. The group discussion identified several foundational issues. These are: a. The lack of a comprehensive and accurate database of workforce data means that data-driven action plans (talent analytics) cannot be undertaken. High-granularity data is necessary for any useful insights to be shared within the sector b. Lack of coordination and standardisation in industry qualifications and certifications, which leads to a mismatch of talent supply and demand especially for high-skilled roles where specialized skills are not transferable	1. MAVCOM agreed with the need to have detailed data on occupations within the sector.
2. The following short-term measures were identified: a. Draft human capital development policy to set aspirations for the sector b. Identify relevant stakeholders for potential collaborations c. Establish committee and working groups with the industry partner, academic and related government agencies to ensure holistic views of the sector are captured d. Study the sector workflow and value chain to identify gaps and areas of improvement e. Create a talent baseline f. Identify the critical occupations to attract, retain and upskill skilled talent g. Define the National Occupational Skills Standard ("NOSS") and align the training modules to it to build the required competencies of a skilled workforce	2. MAVCOM took note of the group's contribution.

Discussion	Action Items
3. The following medium-term measures were identified: a. Develop an effective career pathing to ensure healthy succession pool in the sector b. Establish centre of excellence following the global standards c. Set up a pool training fund under Human Resources Development Fund ("HRDF") alongside with the Financial Staff Training Fund by the Bank Negara Malaysia d. Form industry player – academia partnership in developing specific industry-standard training modules e. Brand aviation professional as a career of choice to attract younger generation	3. MAVCOM took note of the group's contribution.
4. In the long term, human capital development strategies should aspire to establish a global centre of excellence for aviation-related training in Malaysia and to develop a culture of lifelong career development in the sector.	4. MAVCOM took note of the group's contribution.
5. Dr. Bush highlighted that more recognition and assessment should be done on the impact of technology on the sector. The presence of technology might potentially change the landscape of the future workforce.	5. MAVCOM took note of Dr Bush's comments.
6. MOT highlighted that talent in the general aviation (i.e. business jet) and air-speciality services (i.e. air ambulance) should not be disregarded as part of human capital development despite the market being niche.	6. MAVCOM took note of the participants' comments.
7. AirAsia highlighted that aviation professionals like route planners and revenue management executives also play an important role in the value chain of the aviation business. The roles are currently mostly assumed by expatriates due to a lack of local expertise. Additionally, taxes on allowances are pushing local flight crews to join Middle Eastern carriers.	7. MAVCOM took note of the participants' comments.

Discussion	Action Items
8. With regards to training facilities and centres of excellence, AirAsia recognized that there is sufficient supply, despite their recent disposal of Asian Aviation Centre of Excellence Sdn. Bhd. to its joint venture partner CAE International Holdings Ltd.	8. MAVCOM took note of the participants' comments.
9. MAG asked whether a cooling-off period should be imposed to mitigate the risk of talent poaching. TalentCorp responded that talent should not be grounded, and the penalty mechanism like the one practised by financial institutions can be introduced in the sector, where the hiring employer must contribute 10% of the annual salary of the new hire to the centralized training fund.	9. MAVCOM took note of the participants' comments.
10. A representative from MAVCOM suggested that careers in the aviation sector can be better publicized by initiatives such as exhibitions, museums, and knowledge centres.	10. MAVCOM notes that flying clubs have visited MAVCOM's office before and agree with the need to attract young graduates into the sector.
Concluding Remarks	
1. MAVCOM thanked all attendees for attending and summarized key points of the discussion. MAVCOM informed participants that they will receive the meeting minutes for this workshop in a few weeks. One-on-one engagements with stakeholders can be arranged on request.	1. MAVCOM will prepare and circulate meeting notes to all workshop participants.
2. MAVCOM will host a workshop to discuss the final draft of the EMP, scheduled for November 2018	2. MAVCOM will invite participants to the final workshop.

Final Workshop

12 – 13 November 2018

Discussion	Action Items
Introductory Briefing	
1. MAVCOM thanked the participants for attending the workshop. This workshop is the fourth and final external workshop on the Economic Master Plan for the Civil Aviation Industry ("EMP") following the previous introductory, inception, and interim workshops. The purpose of the Final Workshop is to recap the takeaways from the previous workshop and to obtain feedback on the recommendations that are to be proposed in the EMP.	For information.
2. MAVCOM explained that each group will primarily discuss their assigned topics on the first day of the Final Workshop, where MAVCOM's representatives assigned to each table will facilitate the discussion. The facilitators will answer any questions regarding previous research and recommendations arising from the Interim Workshop. The workshop will end with a plenary session on the second day where each group will present the key takeaways from their discussion.	For information.
3. MAVCOM's Board of Commissioners ("BOC") had decided to develop the EMP for the Civil Aviation Sector, in line with MAVCOM's role as an economic policy advisor to the MOT. The EMP will propose a set of recommendations to the MOT.	For information.
4. The three objectives of the EMP are: a. To outline the long-term economic direction of the civil aviation sector b. To synthesize existing policies, plans, and international commitments c. To identify areas of development priority	For information.
5. In line with the Malaysian Aviation Commission Act 2015 ("MAVCOM Act"), the EMP will cover airports, airlines, and ground handling services. As per the MAVCOM Act, the EMP's coverage of Maintenance, Repair, and Overhaul is only limited to line maintenance activities.	For information.
6. The EMP will be implemented from 2021 to 2030. The period between 2019 and 2020 will be a foundation setting period for any regulations, agencies, or policies that need to be established prior to the implementation of the EMP.	For information.

Discussion	Action Items
7. Although the EMP will only cover areas within the boundaries of the MAVCOM Act, the EMP will give due recognition to the linkages between the EMP and other areas such as technical, safety, and security. The EMP will also be aligned with the key thrusts of the latest available draft of the National Transport Policy ("NTP"), including on multi-modal connectivity and optimal investments in transport infrastructure.	For information.
8. MAVCOM envisaged that the EMP will be complemented by a National Technical Master Plan for the civil aviation sector in order to have a comprehensive National Aviation Master Plan in the future	For information.
Key Takeaways from the Interim Workshop	
1. **Strengthening Malaysia's economic base**: Participants agreed that Malaysia's tourism products need further development if Malaysia is to be developed as a top destination for tourism. In addition to the work currently being pursued by the MOTAC, coordination between the federal and state governments is crucial to ensure the coherent development of tourism products across the country.	For information.
2. **Airport performance and service delivery**: Participants welcomed the upcoming implementation of the Quality of Service ("QOS") Framework as a measure to improve service standards at airports. Some participants expressed the concern that the obligations under the QOS are not cascaded to other service providers within the airport, although this may be solved by incorporating QOS requirements into the Conditions of Use ("COU").	For information.
3. **Alleviating funding constraints for airports development**: Participants broadly agreed that a National Airports Master Plan ("NAMP") is necessary to provide guidance on the development of airports infrastructure in Malaysia and to prevent haphazard investments in airports. Participants also agreed that the airports industry should be financially self-sustaining, with the Government of Malaysia ("GoM") funding the Short Take-Off and Landing Airports ("STOLports") only.	For information.

Discussion	Action Items
4. **Airports network structure**: Participants took the view that the airports network structure may need to be maintained in the near future due to the need for cross-subsidisation to keep non-commercial airports operational. There were diverse views on whether airport charges should be uniform or differentiated across different airports in the network. MAVCOM is currently developing a Regulated Asset Base ("RAB") Framework to provide basis for airports charges.	For information.
5. **Human capital development**: Participants agreed with the need to establish a comprehensive database on the human capital requirements of the civil aviation sector. Participants also identified the challenges of attracting young graduates to the sector due to the perceived lack of accessibility and unclear long-term career paths in the civil aviation sector.	For information.
Presentation on the EMP	
1. The development of the EMP is aligned with the NTP. The EMP is expected to be presented to MAVCOM's BOC in December 2018, following the Final Workshop in November 2018. The NTP was originally scheduled to be presented to its Steering Committee in December 2017, however, owing to the change in government, this timeline has now been shifted to November 2018.	For information.
2. MAVCOM's research shows that Malaysia is ranked fourth in ASEAN in terms of air connectivity, whilst Kuala Lumpur International Airport ("KUL") is ranked third in ASEAN at the airport level. Air connectivity is measured as a function of passenger volumes and the relative importance of connected destinations.	For information.
3. Malaysia's local carriers carry a majority (62.6%) of total passenger traffic for Malaysia. Whilst this is comparable to Singapore (53.7%), Malaysia's traffic is dominated by low-cost carriers ("LCCs"), whereas Singapore's traffic is largely dominated by full-service carriers ("FSCs"). The dominance of different business models in the two countries has implications on their air connectivity.	For information.

Discussion	Action Items
4. Options to increase air connectivity include: a. To promote Malaysia as a top destination for tourism and trade, and the creation of new routes: Ensuring that air route development is coordinated with tourism plans such as the Tourism Transformation Plan 2.0 and the National Tourism Policy, as well as, trade-related policies such as the Logistics and Trade Facilitation Masterplan, with special reference to KUL's status as a 'master air hub'. b. Ensuring multi-modal and seamless connectivity: Development plans for one mode of transport should account for the impact and connectivity with other modes of transport, such as considering last-mile connectivity to and from airports, and the impact of rail developments on aviation. c. Increase the number of carriers flying in and out of Malaysia: The EMP should consider ways to ensure that Air Services Agreements ("ASAs") are linked to connectivity considerations, given the low level of utilization of existing ASAs.	For information.
5. Both low connectivity and sub-optimal airports are a function of a lack of competition and commercialization. Low connectivity is also linked to a weak economic base that has been occurring over the last few years and a lack of multi-modal connectivity that links road, rail, and ports. These constraints need to be mitigated at the policy level and operationalized through action plans.	For information.
6. The EMP can be a strong enabler to holistically develop the transportation system in Malaysia. It focuses on increasing connectivity, improving service levels for airports and airlines, and developing a fair and competitive commercial environment, as well as, a strong human capital base.	For information.
7. Air connectivity is strongly correlated with the number of airlines operating out of and within a country, which in turn, is affected by the competitive and commercial environment. Given this, the number of airlines operating in and out of Malaysia needs to be increased. More air routes should be liberalized by ensuring that ASAs are linked to connectivity considerations.	For information.

Discussion	Action Items
8. There is a recognition that Malaysia's airports industry structure is a near monopoly. Whilst the operating agreement lays the responsibility for development capex on the GOM, both the GOM and Malaysia Airports Holdings Berhad ("MAHB") are facing financial constraints in their ability to provide funds for airport development. Considering this, the EMP will also explore ways to seek gains in operational efficiency so that the existing infrastructure can be utilized better.	For information.
9. Some measures undertaken to improve the performance and service levels at Malaysia's airports are as follows: a. Introduce financial transparency at airports (foundation-setting period) b. Changes in corporate governance (long-term) c. Gradual introduction of competition into the airports system (long-term) In addition to the 3-step reform, improvements in the service and performance levels for Malaysia's airports should also be undertaken through the following options: a. Implement the QOS Framework (foundation-setting) b. Reform the ground-handling sub-sector (foundation-setting, medium-to-long term) c. Measure the efficiency of Malaysia's airports via a Data Envelopment Analysis ("DEA") framework (foundation-setting) d. Establish airside connection between KUL's main terminal building and KUL's second terminal ("klia2") (foundation-setting) e. Develop a comprehensive NAMP (foundation-setting)	For information.
10. To address development funding constraints, the EMP will recommend that a review of the airports industry structure to be undertaken. The industry review should demarcate commercial and non-commercial airports, as well as, identify the party or parties responsible for funding these airports. The EMP will also recommend for the creation of a NAMP to provide direction for the development of airports infrastructure in Malaysia.	For information.

Discussion	Action Items
11. Malaysia's economic base needs to be strengthened to increase demand and supply for air travel and therefore improve air connectivity. In this regard, Malaysia should be promoted as a top destination for trade and tourism. The options (and timeline) include: a. The coordination of air routes with tourism plans under the Tourism Transformation Plan 2.0 should continue (short-to-medium term) b. The development of the National Tourism Policy 2.0—MAVCOM is involved in the discussions with the MOTAC relating to the linkage between tourism and air connectivity (short-to-medium term) c. The coordination of air connectivity-related measures in the Logistics and Trade Facilitation Masterplan and other policies and plans (short-to-medium term)	For information.
12. Commitments to multi-modal connectivity need to be strengthened at the policy-level, specifically those within the foundation-setting period: a. Embedding commitment towards seamless, multimodal connectivity in future transportation plans b. Including a policy in the NTP mandating future large-scale transportation plans to be subject to a feasibility study that includes impact analyses on other transport modes as part of the pre-commencement process c. Developing plans for airports to include first- and last-mile connectivity considerations	For information.
13. A fully commercial and competitive civil aviation sector also need to be supported by a strong human capital base. Relating to this, a comprehensive talent baseline needs to be determined during the foundation-setting period before the sector's talent development strategy can be carried out: a. Establishing a working committee and working groups with the industry, academia, and related government agencies b. Creating and maintaining a comprehensive human capital database for the sector c. Studying the sector's workflow and value chain	For information.

Discussion	Action Items
In addition, there also needs to be a talent development strategy by: a. Developing an effective career pathing for the sector (short-to-medium term) b. Setting up a pool training fund (short-to-medium term) c. Forming industry players-academic institutions partnerships in creating specific industry-standard academic/training modules (medium-term)	
14. The primary challenge for the development of long-term strategies for human capital development is the lack of comprehensive data on the employment, occupations, and skills required in the aviation industry. The EMP will recommend the development of a database to fill this gap, before a talent development strategy can be developed.	For information.
15. Finally, the establishment of a fair and competitive commercial environment overlays reforms to the sector, where aviation-related competition law and promotion of liberalization are the key reforms. In this regard, there needs to be an enforcement of a sound and updated aviation-related competition law: a. Application of competition law based on fair competition principle (current-to-medium term) b. Application of competition law based on free competition principle (medium-to-long term) In addition, there also needs to be a promotion of liberalization of ownership-related measures for the civil aviation sector. These are to be undertaken through: a. A phased approach to liberalize ownership/equity policy (medium-to-long term) b. Abolish the golden share in MAHB (short-term) c. Championing the establishment of a community carrier in ASEAN (long-term)	For information.

Discussion	Action Items
The implementation of the EMP also requires an NAP, in which there are two broad action items that are to be undertaken during the foundation-setting period. The first action item requires the identification of clear objectives and priorities for the development of the civil aviation sector, with clear directions on the balance of priorities. The option under this action item is a commitment towards maximizing air connectivity to be embedded and balanced against other priorities (e.g. safety and security). The second action item under this strategy is to develop overarching policies on the economic management of the civil aviation sector, including but not limited to, liberalization, ownership, and management of transportation assets. The key questions under this action item are: a. Airports: How will airport infrastructure be funded in the future? b. Airlines: What is the way forward for airlines liberalization? c. Air Navigational Service ("ANS"): What is the way forward for ANS?	
16. The framework for the EMP has been simplified from the previous draft. Whilst the underlying vision for the EMP remains to develop Malaysia as a top destination for economic activity, the primary goal of the EMP is to develop strong mobility and air connectivity. This primary goal will be supported by three pillars and guided by the NAP, namely: a. Availability of appropriate airport infrastructure b. Strong civil aviation-related human capital base c. Fair and competitive commercial environment	For information.
17. The EMP is designed to be a long-term plan. Whilst some of these options are not feasible in the immediate future, it is nonetheless important to lay the foundations so that these options can be pursued in the medium to long term.	For information.

Discussion	Action Items
18. Questions from the floor:	
a. The representative from the IRDA requested that aviation-specific items that were announced in the 2019 Budget, for example, the effects of the Departure Levy, be discussed during the Final Workshop.	MAVCOM replied that it views the announcements as policy decisions and are beyond the ambit of the EMP. In addition, the announcements were not accompanied by implementation details such as how long the Departure Levy will be in effect. MAVCOM also mentioned that the development of the NAP should be cognisant of other developments in the industry.
b. Dr. Harry Bush ("DHB") commented that there has been a lot of emphasis in attracting other airlines to improve air connectivity. Instead, emphasis should be given on the robustness of the aviation system and competition in the sector to develop resilience. For example, in Belgium, not enough resilience was built into the aviation sector, which resulted in the deterioration of the country's air connectivity when several airlines went bankrupt. In addition, emphasis should also be placed on making the best use of existing infrastructure such as airports and the ANS.	MAVCOM noted and acknowledged that the EMP needs to be implemented holistically, where liberalization and competition must go together. On airports, MAVCOM understood that there is a need to explore ways to make airports more efficient, which has been tackled with the rollout of the QOS Framework, but airport management must also find ways to improve airports' efficiency without requiring further capital investments.

Discussion	Action Items
c. Dr. Volodymyr Bilotkach ("DVB") commented that MAVCOM should consider the amount of leverage Malaysia has in ASA negotiations and what can be done to increase it when negotiating with bigger countries. He also raised a point about aviation competition law, where in many countries, it falls under the remit of the general competition authority. He sought justification for the placement of the aviation competition law under MAVCOM.	MAVCOM explained that the model being used in Malaysia differs from that of several countries, where sector regulators are also competition regulators for the particular sector. These sectors include aviation, and multimedia and telecommunications.
d. The representative from MAB raised the issue of over-competition in the Malaysian aviation industry among airlines.	MAVCOM said that the issue of competition needs to be looked at the route level and not all domestic routes in Malaysia suffer from over-competition. In addition, in determining the level of competition in any route, MAVCOM would also need to assess the cost structure and ticket pricing of the airlines that operate on the route. However, this issue is different from the EMP, as it will fall under Part VII (Competition) of the MAVCOM Act.

Plenary Session Discussions

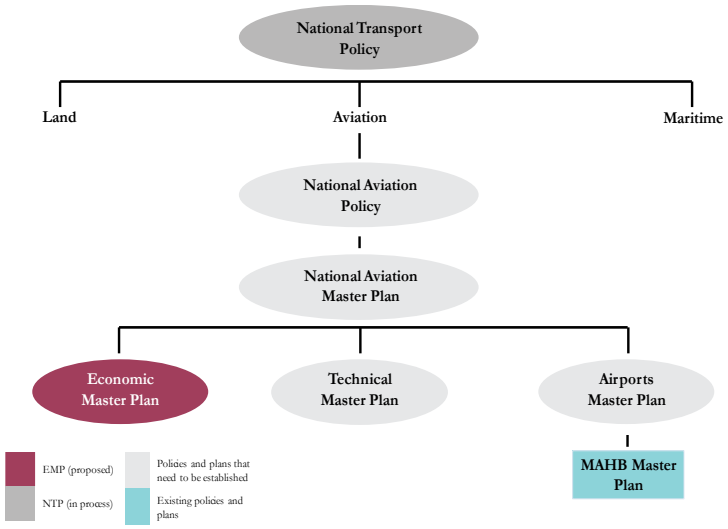
Participants have been grouped into six groups for the breakout sessions. The groups were assigned the following topics:

a. Group 1: Policy
b. Group 2: Macroeconomics
c. Group 3: Connectivity
d. Group 4: Airport Reforms
e. Group 5: Airport Service Levels
f. Group 6: Human Capital

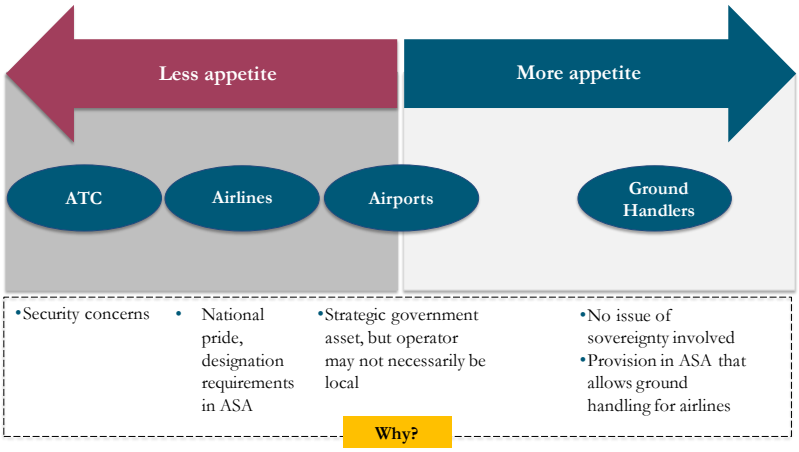
Discussion	Action Items

Group 1: Policy

1. There is a need for an NAP to guide policy-making in the sector. Policy gaps will be highlighted in the EMP for consideration by the MOT.	For information.
2. On foreign equity liberalization for airlines, it is a policy decision that should be made by the MOT. On ANS, it is under the responsibility of the Civil Aviation Authority of Malaysia ("CAAM"), but MAVCOM will study related issues further if the liberalization of ANS involves economic considerations.	For information.
3. The group acknowledged that the GOM has voluntarily signed up to the CORSIA arrangement. By 2021/2022, all airlines that fly international flights will have to undertake efforts to reduce carbon emissions.	MAVCOM took note of the group's contribution.
4. There is a lack of policies and master plans in the industry that hinder the development of the sector:	For information.



5. The importance of enforcing sound and updated aviation-related competition law cannot be understated. This would fall under the purview of MAVCOM.	For information.
6. In promoting liberalization of ownership-related measures for the civil aviation industry, any policy change would also involve the MOF. The group agreed that any changes to the golden share mechanism would involve amendments to the Operating Agreement between the GOM and MAHB.	MAVCOM took note of the group's contribution.

Discussion	Action Items
7. In the EU, Community Carriers have gained market share from traditional carriers, and benefited consumers. The establishment of Community Carriers has benefited both FSCs and LCCs. However, without a supranational body like the European Commission, the establishment of a Community Carrier in ASEAN needs the agreement of all Member States. As a start, Malaysia could consider establishing Community Carriers on a bilateral basis with Thailand/The Philippines or allow ASEAN nationals to hold a majority equity in the airlines of ASEAN nations.	MAVCOM took note of the group's contribution.
8. The group also notes that there are varying degrees of appetite for liberalization in the aviation sub-sector.  	For information.
9. The group also discussed and highlighted several additional points, as follows: a. ASA utilization remains low (only 30%, on average). Efforts are required to increase utilization rates. b. Promoting connectivity in establishing new routes is sometimes challenging, given occasional rejection in the application for new routes under a 'fair competition' principle. c. Trade facilitation remains a challenge. Cooperation is needed on an inter-Ministry basis (e.g. MITI, MOF) to resolve issues to strengthen Malaysia's competitiveness. d. A strong tourism base is needed to enhance Malaysia's air connectivity and attractiveness.	MAVCOM took note of the group's contribution.

Discussion	Action Items
10. DHB commented that the appetite to liberalize certain sub-sectors in the aviation industry must also be feasible. For example, liberalization of ANS must be done with the Air Traffic Control ("ATC") having its own income stream, and not dependent on government grants. DHB also opined that liberalization of ATC is also much more difficult than airlines in terms of appetite, and therefore, this should be reflected as such.	MAVCOM took note of the group's contribution.
11. DHB further raised the point on the existence of political will to remove golden share; MAVCOM would be suggesting that the government to hand over power (via the abolishment of the golden share) and leave development capex to the airport operators. However, it would be more palatable if MAVCOM clearly spells out what the government can and cannot do with the golden share rather than abolishing it altogether, which, as mentioned, might be politically difficult.	MAVCOM replied that independence is key for MAHB to make decisions based on commercial considerations, also arguing that golden shares can have an anti-competitive effect in some cases. The EMP should spell out clearly how intrusive the golden share is i.e. what it currently allows the GOM and MAHB to do.
12. MOT is not able to answer on the need for an NAP at the moment but iterated that all recommendations in the EMP will be taken into consideration.	For information.
13. On other requirements by other groups for the need of an NAP: a. Group 3 – areas of priority of liberalization in terms of ASAs (e.g. regional vs bilateral considerations, unilateral vs reciprocal liberalization). b. Group 4 – policy decision on non-ICAO compliant airports. c. Group 5 – there should be an alignment of policies and effective enforcement of implementation to ensure each policy implemented enacts the desired changes. d. Group 6 – concurred with Group 5; there should be a harmonization of all existing policies.	MAVCOM took note of the group's contribution.

Discussion	Action Items
Group 2: Macroeconomics	
1. In terms of airport infrastructure, MAVCOM's internal research showed that dedicated airport infrastructure may not be sustainable in the long-run because airlines' business models tend to change over time.	For information.
2. The National Tourism Policy 2.0 is still currently in the drafting stage and may not contain specific action items.	For information.
3. The manufacturing sector has become less important as a contributor to the economy, and, as a result, the economy has become more domesticated and air cargo has become less efficient. MAVCOM needs to verify in the Logistics and Trade Facilitation Master Plan to see if challenges related to air cargo and similar aviation issues have been identified and addressed.	MAVCOM took note of the group's contribution.
4. DVB enquired on the areas that need to change to support the growth of the sector.	MOTAC said that the tourism sector should be the main driver for the economy in the future.
5. DHB said that, from an infrastructure point of view, it is more important to have terminals within an airport that can cater to the different business models of airlines than having to construct new airports to cater to the different models. Relating to a need for a new LCC Terminal ("LCCT") in Malaysia, it is imperative to make the best use of existing airport infrastructure and not use more government money to embark on new projects. On subsidies and incentives, there are rules that need to be followed, just like in the EU. Typically, in the EU, subsidies and incentives may be given to airports, rather than airlines.	MAVCOM took note of the group's contribution.
6. AirAsia said that infrastructure should be linked to a certain master plan. The authority of such master plan has to be set-up to identify the needs of airlines and passengers. The NAMP has to be holistic to take into account all those factors.	MAVCOM took note of the group's contribution.
Group 3: Connectivity	
1. There needs to be a shift in mindset from attracting investors through the building of domestic infrastructure i.e. supply-side factors, citing high regional competition and cost of infrastructure.	MAVCOM took note of the group's contribution.

Discussion	Action Items
2. Liberalising the aviation industry will allow players to source capital from overseas.	For information.
3. The group noted that tourism is a major earner of foreign currency which will help improve Malaysia's balance of payments. However, more effort needs to be undertaken to increase tourism revenue given that Malaysia is often seen as a low yield market.	MAVCOM took note of the group's contribution.
4. There needs to be an improvement in cargo facilitation as there have been complaints from companies (e.g. Broadcom in Penang) that the logistics sector could not keep up with the growth of their businesses. These businesses are then forced to deliver their cargo as far as Changi Airport ("SIN").	MAVCOM took note of the group's contribution.
5. The group noted that there are several options for improvement of connectivity: a. Relaxing of foreign ownership rules in the aviation industry b. Liberalising on a unilateral basis instead of on a reciprocity basis with other countries e.g. following the Philippine model by allowing 100% foreign ownership of airports c. Immediately liberalising the air cargo industry d. Liberalising Air Traffic Rights restrictions e. Improving trade facilitation since currently there is value leakage due to loss cargo to SIN f. Visa facilitation – visa waiver programme for eight selected countries is ending on 31 December 2018, and unless the programme is extended, the number of tourists from these countries will decline g. Restriction on operation hours for international airports should be lifted	MAVCOM took note of the group's contribution.

Discussion	Action Items
Group 4: Airport Reform	
1. For airport reforms to be properly planned and implemented, policy clarity is required on a wide range of issues, including substantial ownership and control, responsibility for capex, treatment of non-compliant airports, and the mix of airport infrastructure. An NAP and NAMP are required to provide policy clarity on these issues to facilitate airport reforms.The NAP should identify the objectives for government involvement in the aviation sector and identify the optimal form of involvement to achieve these objectives. The document should embark on a stock-check of current forms of government involvement and understand their resulting implications**.** For example, the need to issue a government guarantee for MAHB's bonds may be revisited given the presence of the RAB framework currently being developed by MAVCOM to guarantee airport operators a fair rate of return, in addition to providing transparency to investors. The NAP should also provide guidance on the nature of airport infrastructure, including on the issue of the choice between common-use terminals and LCCTs.	MAVCOM took note of the group's contribution.
2. As part of establishing financial transparency to identify the financial position of individual airports, an exercise to allocate shared operating costs to individual airports should be carried out. Operating costs currently borne centrally by MAHB headquarters (such as Human Resources, Finance, IT Support, and engineering services) should be allocated to individual airports, which will provide the airport operator with their true costs of operation and may potentially identify opportunities to reduce diseconomies of scale. It was recognized that a similar process will need to be undertaken for capital costs, but this will be a more challenging process.	MAVCOM took note of the group's contribution.
3. For Public Service Obligations ("PSO") operations, the government should establish a PSO-equivalent regime for STOLports that are required to operate the relevant routes. The government should also consider opening up the operation of PSO routes to competititve tender in the longer term. To facilitate this, the contract with MASwings should incorporate a mid-term staggered review mechanism where sets of routes may be reviewed during the contract term and potentially tendered to other operators.	MAVCOM took note of the group's contribution.

Discussion	Action Items
4. The EMP should consider the role that airspace management may play in the growth of the industry. In the past, lags in implementing development plans mean that bottlenecks may be created by airport terminal constraints despite airspace expansion, and vice versa. The EMP should recognize the importance of ensuring that both airport and airspace capacity, as well as, the ecosystem of airport support services (e.g. Air Navigation and Flight Control ("ANFC")) and meteorological services) grow in a coordinated way.	MAVCOM took note of the group's contribution.
5. As a way to modernize ANS, one solution may be to use digital towers to centralize ANS, especially for smaller airports. These allow the ANS for multiple airports to be provided at a central location, with the potential for cost savings. In the longer term, the charges for ANFC services should gradually transition towards a cost-recovery basis, in line with the user-pay principle.	MAVCOM took note of the group's contribution.
6. Airport decentralization, as part of the airport reforms, may lead to a changing role for the hub-and-spoke network. As individual airports have the autonomy to develop and market their own routes and networks, as well as, technological advances resulting in aircraft with increased flying range, the role of KUL as the main hub may change as a result due to hub-bypass, where direct flights to secondary airports are developed. The EMP should recognize this possibility and the potential benefits that it brings to the local economies and facilitate airports to take advantage of the opportunities that commercial autonomy grants to them. It is also worth noting that decentralization is an exercise worth doing in and of itself, regardless of other reforms regarding privatization or carving out specific airports from the network.	MAVCOM took note of the group's contribution.
7. The EMP should commit to benchmarking airport performance in terms of financial performance and cost efficiency to complement the customer experience aspects currently measured by the QOS Framework. The EMP should also not prematurely commit to using the DEA methodology and recognize that performance measurement for airports may have reputational effects on airport behavior should the rankings be published.	MAVCOM took note of the group's contribution.

Discussion	Action Items
8. A participant from MAVCOM requested an example regarding the policy actions required to facilitate airport decentralization.	The presenter responded that an example would be to ensure that airports that can attract international routes are equipped with the required Customs, Immigration, and Quarantine facilities necessary to cater to international traffic.
9. A participant asked a question regarding the timeline for the proposed action items. The proposed timeline is as follows:	The presenter responded that the development of the complementary policy documents and the allocation of operating costs should occur in the foundation setting period. In the short-term, the government's role in PSO and STOLports should be finalized, in addition to MAVCOM's work on airport benchmarking. The ANS modernization and airport decentralization should occur in the medium term, whereas the introduction of competition in PSO routes should only occur in the longer run.

Foundation Setting	National Aviation Policy	National Airports Master Plan	Cost allocation
Short Term	Finalize government's role in non-commercial aviation services		Airport benchmarking
Medium Term	Modernization of ATC	Airport decentralization	
Long Term	Introduce competition in RAS and STOLports		

Discussion	Action Items
10. A participant from MAVCOM enquired about any discussion on other methods of measuring airport performance.	A representative from the group responded that while the group did discuss the UK Civil Aviation Authority's use of simple measurements and comparisons of selected metrics on security and operational efficiency, the main issue is not the weaknesses and strengths of DEA per se, but that the choice of methodology should not be done at the EMP stage.
Group 5: Airport Service Levels	
1. The presenter thanked MAVCOM for implementing the QOS Framework onto airport operators in Malaysia. The airlines wanted the implementation of service levels in airports approximately nine years ago, in which MAB and AirAsia worked together to form a Service-Level Agreement ("SLA"), but the proposal was rejected by MAHB.	For information.
2. The discussion in Group 5 was on ways to penalize underperforming airport service providers with regards to the service levels as the current QOS Framework only penalizes the airport operators. As such, there should be an authoritative body similar to Changi Airport Group in Singapore that can penalize the airport service providers involved in the operations of the airport. In Malaysia, there is no authoritative body in the airport that can direct agencies in the airport to smoothen the airport's operations.	MAVCOM took note of the group's contribution.

Discussion	Action Items
3. The policies between the airport service providers and airport operator in KUL is not aligned. For example, long queues are formed in KUL that is caused by immigration checks. This affects the service levels of the airport operator. The Immigration Department would need to revert to their headquarters for any confirmation and decisions on any changes in operations instead of an authoritative body such as MAHB making direct decisions. However, the group acknowledged that it will be a cumbersome process as it involves certain policy changes.	MAVCOM took note of the group's contribution.
4. The group also discussed the imposition and enforcement of the QOS Framework on the airport service providers. When the airport operator is penalized for not meeting the required service levels, the airport operator could trickle it down onto airport service providers to ensure that the service providers are accountable for the relevant areas that do not meet the service levels. However, the airport operator would have to decide on the mechanics to enforce it onto the airport service providers, be it via SLA or COU.	MAVCOM took note of the group's contribution.
5. The liberalization of the ground handling sector is taking place under the ASEAN Transport Working Group. More ASEAN countries are opening up its foreign ownership requirements such as Laos, as they need capital injection. It is also worth to note that Malaysia has agreed to liberalize its foreign ownership requirement for aircraft repairs and maintenance.	MAVCOM took note of the group's contribution.
6. MAHB stated that the airside connection between KUL's main terminal building and klia2 will be established in three phases as follows: a. Phase I: Landside connectivity (Completed) b. Phase II: Airside baggage connectivity (December 2018) c. Phase III: Airside baggage and passenger connectivity (Still in discussion)	For information.
7. MAHB also stated that on 16 November 2018, the first meeting to discuss the implementation of Phase II will be carried out and the target to complete Phase II is in December 2018 or early 2019. For airlines, this is an important step as the main terminal building of KUL has reached its capacity and congestion is becoming a problem. With the connectivity between the two terminals in place, some airlines could be moved to klia2 as it is currently underutilized.	MAVCOM took note of the progress.

Discussion	Action Items
8. With regards to multimodal connectivity, there is already an ASEAN agreement signed in 2005. On 19 November 2018, MOT will be calling for a meeting on how to operationalize the framework. Hence, there is already progress and development in the multimodal connectivity at the ASEAN level.	MAVCOM took note of the group's contribution.
9. MAVCOM enquired on how the obligations under the QOS are to be translated to other service providers within the terminal.	MAHB replied that they have not yet decided on ways to enforce it onto the airport service providers and stated that agreements such as COU and SLA would take time as there are approximately 60 airlines and a large number of airport service providers.
10. MAHB stated that they are progressing towards a digitalization phase where big data analytics would be introduced to improve their operations. Data from the airport and the airport service providers would also be integrated into this initiative.	MAVCOM took note of the progress.
11. The representative from Skypark stated that during the planning of klia2, there was already a plan to have a connection on the airside, baggage and passengers between the two terminals. Currently, the transferring of baggage would take 45 minutes to an hour via the apron. Another method that was suggested to solve this is to compel airlines to accept each other's baggage.	MAVCOM highlighted that the EMP is going to be a high-level document and has to take into account the entire airport operations by all players. On operational matters, it is preferred for the players to act on a more commercial basis and not depend on interventions by regulators.

Discussion	Action Items
12. MAVCOM confirmed with the MOT that the upcoming multimodal connectivity meeting on 19 November 2018 will be carried out by the logistics and trade facilitation task force and would involve other sectors as well. This meeting is also an initiative under the NTP.	The participants took note of it.
Group 6: Human Capital	
1. The group revisited the two previous recommendations that were discussed during the Interim Workshop in June 2018: a. Develop Occupational Framework b. Identify critical occupations and talent needs	For information.
2. The group also reiterated the foundational issues that could impede the human capital development plan. Among the issues raised during the presentation were as follows: a. Lack of accurate and comprehensive data on the workforce (talent analytics) b. No standardization in industry qualifications and certifications c. Need to benchmark against global standards d. Lack of career branding and awareness of the aviation profession e. Lack of funding for personnel development and civil aviation-related training f. Highly fragmented industry g. Lack of training facilities h. Ambiguity in future trend in aviation workforce i. Closed mindset and exclusiveness of the industry	MAVCOM took note of the group's contribution.
3. The group also highlighted the importance for all the industry players to give full cooperation and participate in surveys by any government agencies as this will help in policy decisions at the top level. The recent case-in-point was the lack of responses from industry players in the critical occupations list ("COL") survey by TalentCorp. The COL is one of the instruments to promote better coordination of human capital policies aimed at attracting, nurturing and retaining talent. The representative from TalentCorp acknowledged AirAsia in responding to the COL survey and shared their feedback accordingly.	MAVCOM took note of the group's contribution.

Discussion	Action Items
4. The group emphasized the need to establish a working committee and has identified four objectives to be achieved by the working committee as summarized in the table below:	MAVCOM took note of the group's contribution.

Objective	Description
Objective 1: Harmonize codification of the key aviation skills required	• Ensure certifications and accreditations are internationally recognized and consistent across the sector
Objective 2: Assess current talent demand, supply, and gap	• Assess talent demand and supply requirements from industry players by phases, projects and regions • Collaborate and assess current educational institutions that are supplying talent to the sector • Identify critical talent development gaps i.e. COL by TalentCorp
Objective 3: Define operating model and funding requirements	• Understand the operational side of the aviation talent ecosystem, including academic institutions that are supplying talents to industry • Ensure inclusivity of each element in the aviation value chain on human capital development via a holistic operating model • Facilitate policy interventions and changes • Solicit feedback and opinions via a consortium of key industry players • Changing the role of MAVCOM as an industry facilitator and how it needs to adapt accordingly
Objective 4: Develop implementation plan and roadmap	• Recommend pragmatic and practical approaches • Draft out realistic timeline and detailed roadmap • Allocate resources as required

Discussion	Action Items
5. The group highlighted that relevant stakeholders have been identified and the vision of human capital development for the aviation sector has been defined. The next step will be the establishment of a working committee. The working committee will help facilitate information sharing, as well as, expediting the execution process. Until and unless the working committee is established, the implementation plan will be halted at the planning stage.	MAVCOM took note of the group's contribution.
6. The group proposed for the MOT, MOHR, EPU, and MOF to be on the Advisory Board while MAVCOM plays its role as an industry facilitator. The group also identified several other agencies as relevant stakeholders for the EMP such as the Department of Skills Development, the Aerospace Malaysia Innovation Centre, Association of Asia Pacific Airlines, and education institutions offering Technical and Vocational Education and Training courses. However, the group highlighted that the proposed working committee is provisional.	MAVCOM took note of the group's contribution.
7. The group revisited the previous strategies with a new set of action plans and a few additional stakeholders added to the list (please refer to Table 1 in Appendix 2). The group highlighted the need to include foreign carriers in the study—as they also employe local workforce—to ensure that the workforce database is comprehensive, and the data collected reflects the prevailing scenario in the industry.	MAVCOM took note of the group's contribution.
8. The group presented the proposed milestones and timeline, as below:	MAVCOM took note of the group's contribution.

Activities	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019
Develop framework/ Terms of Reference					
Setting up working Committee					
Develop the occupational framework					
COL exercise					
Identify competencies and skills gap					
Project End					

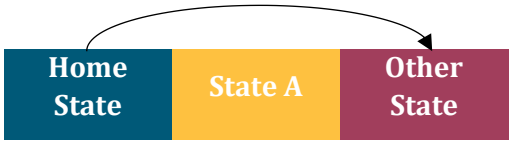
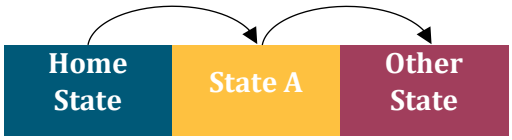
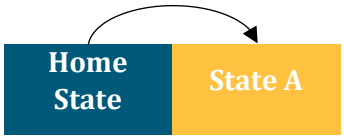
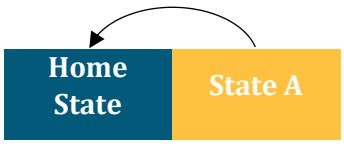
Discussion	Action Items
9. MAVCOM raised a concern on the challenges around gathering data on the human capital workforce and asked the participants for their views. MAVCOM also commented that CAAM should be in the working committee to ensure that the human capital database is comprehensive and exhaustive; covering both the technical and commercial sides of the industry.	The group took note of the comment.
10. DVB suggested for the group to refer to ICAO statistics on human capital of which airlines, civil aviation authorities, as well as, training institutes submitted their personnel headcount. However, DVB mentioned that the relevant stakeholders might not be diligent in submitting the data with the required granularity.	MAVCOM took note of DVB's suggestion.
11. The group commented that the data collected by ICAO could only be for technical, safety and licensing purposes and, as such, it would exclude the commercial roles i.e. business and management personnel. Apart from COL, MAVCOM highlighted that the development of occupational framework is imperative in disaggregating national statistical data on human capital workforce in the aviation industry.	For information.
Concluding Remarks	
1. MAVCOM emphasized that the GOM's involvement in the aviation sector is essential, particularly in policy decisions. For example, the GOM's views on liberalization and expenditure for airport expansion will determine the regulatory mechanism and tools that MAVCOM can leverage on to regulate the sector accordingly including protecting passengers.	For information.
2. MAVCOM also highlighted that the GOM has to be able to make coherent policy decisions for the entire sector, and not just focus on the interest of one or two parties especially when it is subject to lobbying efforts. This cannot be achieved without the EMP or any other policy documents.	For information.
3. MAVCOM stated that firms i.e. industry players are free to make commercial decisions that best fit their business models. DNR also emphasized the importance of government agencies to work together with policy makers i.e. the GOM in formulating the right policies to harmonize the economic activities in the aviation sector.	For information.

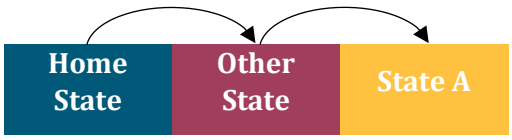
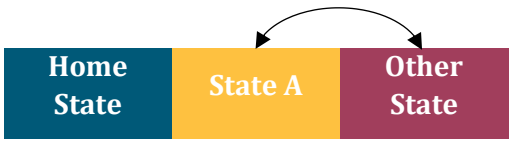
Discussion	Action Items
4. MAVCOM thanked all the attendees for participating in the Final Workshop.	MAVCOM will prepare and circulate meeting notes to all workshop participants.

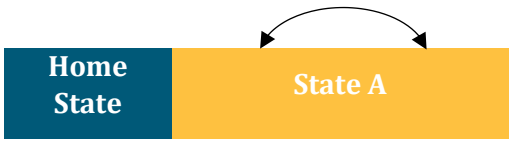
APPENDIX 3: FREEDOMS OF THE AIR

ATRs are exchanged between States based on specific "freedoms of the air" to provide clarity on the types of air services allowed under each ASA. Table 1 explains the different freedoms of the air in relation to scheduled air services.

Table 1: Freedoms of the Air

Freedom of the Air	Illustration
The first freedom of the air: the right granted by State A to another State to fly across State A's territory without landing	 Overfly
The second freedom of the air: the right granted by State A to another State to land in State A's territory for non-traffic purposes (such as maintenance or refuel) on the way to another State	 Technical stop
The third freedom of the air: the right granted by State A to another State to carry traffic from that State to State A *Illustration: a Malaysian carrier flying from Malaysia to Singapore and disembarking its passengers in Singapore*	 Disembark traffic
The fourth freedom of the air: the right granted by State A to another State to pick up traffic from the territory of State A destined for the home State of the carrier *Illustration: A Malaysian carrier flying passengers from Singapore to Malaysia*	 Pick up traffic

Freedom of the Air	Illustration
The fifth freedom of the air: the right granted by State A to another State to put down and to take on traffic in the territory of State A, coming from or destined to a third State *Illustration: A Malaysian carrier operating flights from Kuala Lumpur to Hawaii with a stop in Osaka. The fifth freedom allows the Malaysian carrier to transport passengers between Osaka and Hawaii, which means that passengers can book for the Osaka-Hawaii sector without starting the journey from Kuala Lumpur*	 Carry traffic to or from a third State
Sixth freedom of the air: the right of transporting traffic moving between two other States via the home State of the carrier *Illustration (hypothetical): A Malaysian carrier carrying passengers between Indonesia and the Netherlands via Malaysia*	 Carry traffic via the home State
The seventh freedom of the air: the right granted by State A to another State to transport traffic between the territory of State A and any third State with no requirement to include on such operation any point in the territory of the recipient State, i.e. the service need not connect to or be an extension of any service to/from the home State of the carrier *Illustration (hypothetical): A Malaysian carrier operating flights between India and the UAE with no incoming/ongoing service from/to Malaysia*	 Operate between State A and a third State

Freedom of the Air	Illustration
The eighth freedom of the air: the right granted by State A to another State to transport cabotage traffic between two points in the territory of State A on a service which originates or terminates in the home State of the foreign carrier or outside the territory of State A *Illustration (hypothetical): A Malaysian airline operating between Melbourne and Sydney, both in Australia, and the flight starts in Kuala Lumpur or any other place outside of Australia*	 Carry traffic between two points in State A
The ninth freedom of the air: the right or privilege of transporting cabotage traffic of the granting State on a service performed entirely within the territory of the granting State *Illustration (hypothetical): A Malaysian carrier serving domestic flights within the UK*	 Operate only within State A

Source: ICAO

APPENDIX 4: OUTPUT MULTIPLIERS, 2015

No.	Sub-sectors	Output Multiplier
1	Vegetable & Animal Oils and Fats	2.5
2	Processing and Preserving of Meat	2.3
3	Prepared Animal Feeds	2.3
4	Rubber Tyres and Tubes	2.3
5	Non-Metallic Mineral Products	2.2
6	Cement, Lime and Plaster	2.2
7	Builders' Carpentry and Joinery	2.2
8	Veneer Sheets and Wood-based Panels	2.2
9	Wooden Containers	2.1
10	Soft Drinks, Mineral Waters and Other Bottled Waters	2.1
11	Residential Buildings	2.1
12	Non-Residential Buildings	2.1
13	Paper & Paper Products and Furniture	2.1
14	**Overall Air Transport**	2.1
15	Civil Engineering	2.1
16	Specialized Construction Activities	2.1
17	Sawmilling and Planning of Wood	2.1
18	Processing and Preserving of Seafood	2.1
19	Reproduction of Recorded Media	2.0
20	Other Mining and Quarrying	2.0
21	Motion Picture, Programming and Broadcasting Activities	2.0
22	Sewerage, Waste Management and Remediation Activities	2.0
23	Other Financial Service	2.0
24	Repair & Installation of Machinery and Equipment	2.0
25	Leather Products	2.0
26	Food and Beverage	2.0
27	Dairy Products	2.0
28	Basic Iron and Steel	2.0
29	Fibre Optic, Electronic and Other Electric Cables	2.0
30	Bakery Products	2.0
31	Non-Profit Institutions Serving Households	2.0

No.	Sub-sectors	Output Multiplier
32	Basic Precious and Other Non-Ferrous Metals	2.0
33	Overall Water Transport	2.0
34	Business Services	2.0
35	Other Chemicals Products	2.0
36	Other Livestock	2.0
37	Other Wood Products	1.9
38	Basic Chemicals	1.9
39	Health	1.9
40	Confectionery	1.9
41	Ships, Boats, Bicycles and Invalid Carriages	1.9
42	Other Rubber Products	1.9
43	Overall Warehousing and Support Activities for Transportation	1.9
44	Refractory, Clay, Porcelain and Ceramic Products	1.9
45	Rubber Processing	1.9
46	Motor Vehicles, Trailers and Semi Trailers	1.9
47	Quarrying of Stone, Sand and Clay	1.9
48	Other General Purpose Machinery	1.9
49	Mining of Metal Ores	1.9
50	Optical Instruments, Photographic Equipment, Magnetic and Optical Media	1.9
51	Other Food Processing	1.9
52	Paints and Varnishes	1.9
53	Public Order and Safety	1.9
54	Other Transport Equipment	1.9
55	Glass and Glass Products	1.9
56	Structural Metal Products, Tanks, Reservoirs and Steam Generators	1.9
57	Computer and Information Services	1.9
58	Rubber Gloves	1.9
59	Casting of Metals	1.9
60	Coke and Refined Petroleum Products	1.8
61	Postal and Courier Activities	1.8

No.	Sub-sectors	Output Multiplier
62	Weapons, Ammunition and Special Purpose Machinery	1.8
63	Domestic Appliances	1.8
64	Arts, Entertainment and Recreation	1.8
65	Electronic Components and Boards	1.8
66	Soap & Detergents, Cleaning dan Polishing, Perfumes & Toilet Preparations	1.8
67	Electricity Distribution & Control Apparatus, Batteries and Accumulators	1.8
68	Irradiation, Electro Medical and Electrotherapeutic Equipment	1.8
69	Printing	1.8
70	Plastic Products	1.8
71	Wiring Devices, Electric Lighting and Other Electrical Equipment	1.8
72	Spirits, Wines and Liquors	1.8
73	Finishing of Textiles	1.8
74	Fertilizers and Nitrogen Compounds	1.8
75	Activities Auxiliary to Financial Service and Insurance/ Takaful	1.8
76	Other Textiles	1.8
77	Motorcycles	1.8
78	Measuring, Testing, Navigating and Control Equipment	1.8
79	Electric Motors, Generators and Transformers	1.8
80	Processing and Preserving of Fruits & Vegetables	1.8
81	Publishing Activity	1.8
82	Other Fabricated Metal Products	1.8
83	Communication Equipment and Consumer Electronics	1.8
84	Overall Land Transport	1.8
85	Other Manufacturing	1.8
86	Computers, Peripheral, Office Machinery and Equipment	1.8
87	Telecommunications	1.8
88	Wearing Apparel	1.8
89	Footwear	1.7
90	Poultry Farming	1.7

No.	Sub-sectors	Output Multiplier
91	Grain Mill Products, Starches and Starch Products	1.7
92	Pharmaceuticals, Medicinal Chemical and Botanical Products	1.7
93	Other Private Services	1.7
94	Watches and Clocks	1.7
95	Accommodation	1.7
96	Electricity and Gas	1.7
97	Rental and Leasing	1.7
98	Steam, Air Conditioning, Water Collection, Treatment and Supply	1.6
99	Engines & Turbines, Fluid Power Equipment, Other Pumps, Compressors, Taps and Valves	1.6
100	Public Administration	1.6
101	Wholesale & Retail Trade, Repair of Motor Vehicles and Motorcycles	1.6
102	Scientific Research and Development	1.6
103	Professional	1.6
104	Real Estate	1.5
105	Insurance/ Takaful and Pension Funding	1.5
106	Education	1.5
107	Other Public Administration	1.5
108	Preparation, Spinning and Weaving of Textiles	1.4
109	Fruits	1.4
110	Flower Plants	1.4
111	Tobacco Products	1.4
112	Forestry and Logging	1.3
113	Monetary Intermediation	1.3
114	Other Agriculture	1.3
115	Rubber	1.3
116	Fishing and Aquaculture	1.3
117	Ownership of Dwellings	1.3
118	Vegetables	1.3
119	Oil Palm	1.3

No.	Sub-sectors	Output Multiplier
120	Crude Oil and Natural Gas	1.2
121	Food Crops	1.2
122	Paddy	1.2

APPENDIX 5: LONG-TERM PASSENGER DEMAND FORECAST

Introduction

According to the ICAO's Manual on Air Traffic Forecasting, several methodologies may be employed to forecast passenger demand in the long term. These methodologies include regression analyses, time series analyses, and market research and industry surveys. Amongst these, regression analyses are the most common, and are based on establishing a causal relationship between the dependent variable—in this case, passenger traffic—and a set of independent variables.

Description of the Data

MAVCOM's long-term passenger demand forecast used annual time series data from 2000 to 2018. The dependent variables, in this case, was Malaysia's passenger traffic, while the independent variables tested consisted of the Malaysia's GDP (constant), crude oil price, and the Ringgit Malaysia (RM)/USD exchange rate. The variables included in the model, along with their sources, are as stated in Table 1.

Table 1: Variables Used in MAVCOM's Passenger Demand Forecast Model

No.	Variables	Source
1	Malaysia Passenger Traffic	MAHB and SATSSB
2	GDP (Constant) – Malaysia	Oxford Economics
3	Crude Oil Price	Thomson Reuters
4	RM/USD Exchange Rate	Bloomberg

Description of the Model

For the purpose of forecasting the future passenger traffic for Malaysia, a number of regression analysis were ran on a multiple linear regression model with one period lagged independent variables. The lagged variables function to address issues on endogeneity. The model that was found to have the best fit was the model that includes Malaysia's GDP (constant), crude oil price, and exchange rate, as follows:

$$LnPax_t = -1.2962 + 1.6407 LnMalaysiaGDP_{t-1} - 0.5343 LnForex_{t-1} - 0.1189 LnOil_{t-1}$$

The model showed that higher GDP would have a positive impact on passenger traffic. At the same time, oil price and appreciating RM/USD has a negative impact on passenger traffic. All three variables were found to be statistically significant at the 5% level. Changes in exchange rates affect consumers' travelling decisions, while crude oil price typically represents a proxy to cost of air travel.

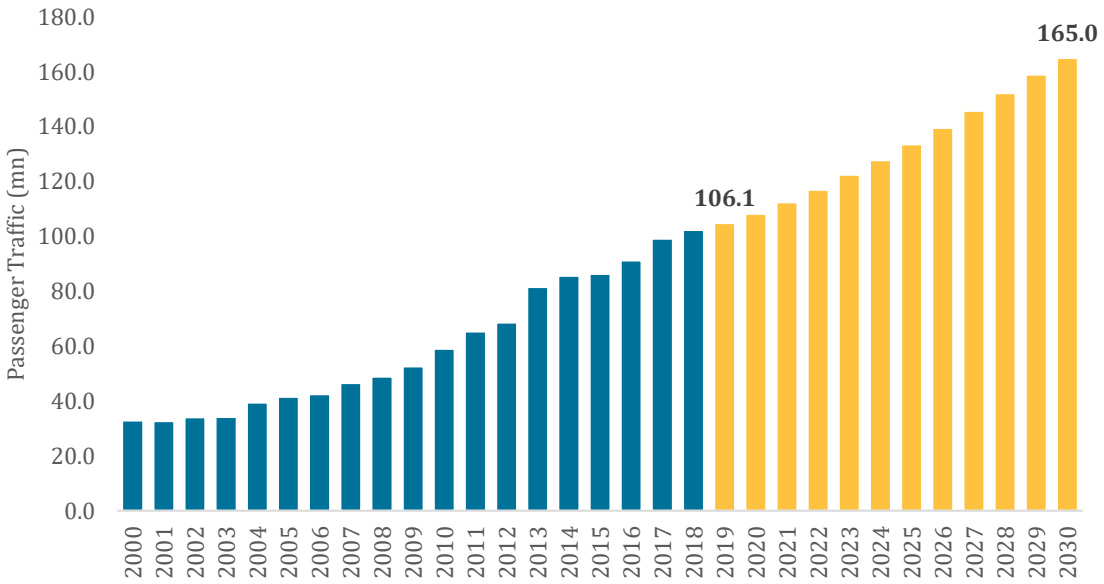
Forecast Data

Referring to the model of best fit, passenger traffic was forecasted for the period 2019 to 2030 by employing the data described in Table 2.

Table 2: Variables Employed to Forecast Passenger Traffic, 2019 – 2030

No.	Variables	Source
1	GDP (Constant)	Oxford Economics
2	Crude Oil Price	Oxford Economics
3	RM/USD Exchange Rates	Bloomberg

Figure 1: Air Passenger Traffic, Malaysia, 2000 – 2030F



Source: MAVCOM Analysis, MAHB, Senai

Forecast Parameters

The parameters used for forecasting passenger traffic from 2019 to 2030 are as follows:

No.	Variables	Forecast Figures
1	Malaysia GDP (Constant)	• 4.5% YoY growth in 2019 • 3.7% CAGR growth between 2019 and 2030
2	Crude Oil Price	• 13.7% YoY decrease in crude oil price to USD61/barrel (BBL) in 2019 • 3.4% CAGR growth between 2019 and 2030 • Crude oil price to hit USD89/bbl in 2030
3	RM/USD Exchange Rates	• RM4.13/USD for 2019 • -2.3% CAGR growth between 2019 and 2022 • RM3.85/USD between 2022 and 2030

The forecasted numbers derived from the model was further adjusted to account for the annual historical trend for additional passengers. For example, between 2008 and 2018, passenger traffic for Malaysia typically grew by 3.2mn – 8.0mn passengers per annum. Where the model overestimated or underestimated forecasted numbers, the numbers were adjusted to reflect the typical historical trend.

Growth Trend Between 2019 and 2030

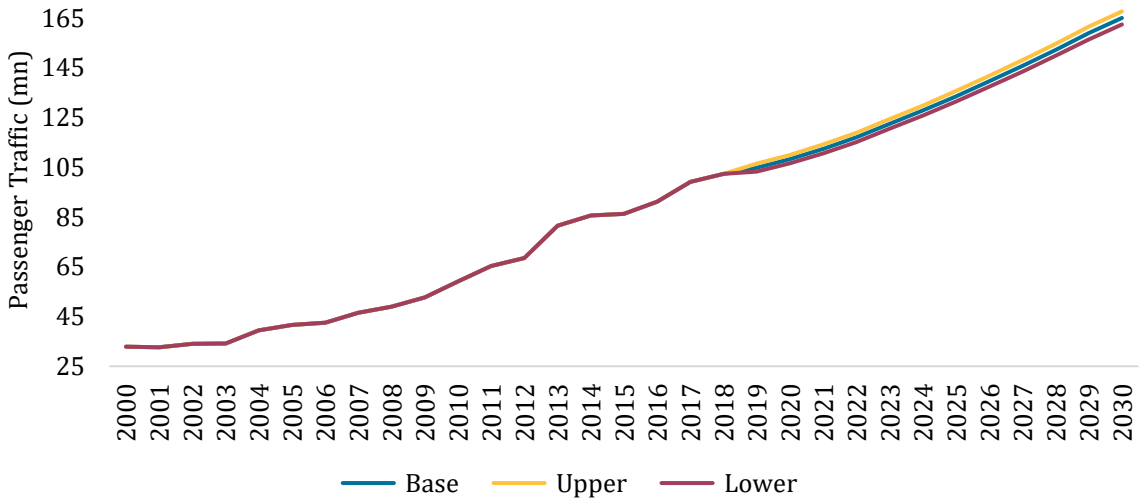
Between 2019 and 2030, passenger traffic for Malaysia is expected to grow at a CAGR of 4.2% where the passenger traffic would grow from 104.9mn in 2019 to 165.0mn in 2030. The expected CAGR growth is at approximately 1.13x the GDP growth for the Malaysian economy of 3.7% for the same period. In comparison, the IATA has forecasted for the global passenger traffic to grow at a CAGR of 3.5% between 2017 and 2037. The main catalyst for the growth in passenger traffic is the expectation of higher economic activities that translate into higher income level. According to Airbus, the propensity to travel for Malaysia would increase from 1.34 trips per capita in 2017 to 2.72 trips per capita in 2030, also driven by higher income levels.

Malaysia stands to benefit from the expectation of strong demand for air travel within the Asia Pacific region, where—according to the IATA—will see the biggest growth in passenger traffic. Passenger traffic for this region will grow at a CAGR of 4.8% from 1.6bn in 2017 to 3.9bn in 2037. Airbus reported that the growth of the middle-class population from approximately 40.0% of the Asia Pacific population in 2017 to about 48.0% in 2027, would also be a strong demand driver for air travel over the next decade. The growth would result in China displacing the United States as the biggest aviation market in the world. Apart from China, the IATA also expected notable passenger traffic growth that would come from countries such as India, Indonesia, Japan, and Thailand during the period. These countries represent 49.0% of total foreign nationals that arrive and depart from KUL in 2017. Therefore, strong growth from these countries would also contribute towards the passenger traffic growth for Malaysia as these countries are currently Malaysia's main air travel markets.

Boeing has forecasted for Southeast Asia's capacity to grow by a CAGR of 5.5% between 2018 and 2037, higher than Airbus' forecast for the Asia Pacific region where fleet size is expected to grow by a CAGR of 4.6% between 2017 and 2037. The higher growth in terms of capacity may provide limited upside to the airlines' ability to raise air fares despite the expectation of higher jet fuel prices in order to maintain load factors. This may provide an additional support to a growth in demand between 2017 and 2030.

This forecast has both upside and downside risks. On the upside, an additional 1.0ppt in Malaysia GDP growth would increase our 2030 passenger traffic forecast by 2.6m, while the forecasted traffic would decline by 2.6m if the growth in GDP was 1.0ppt less than expected, for 2030. This results in a lower and upper passenger traffic forecast growth of 3.9% and 4.1% in CAGR terms, respectively (see Figure 2).

Figure 2: Lower, Base, and Upper Forecasts for Malaysian Passenger Traffic, 2019 – 2030



Source: MAVCOM Analysis, AirportIS

APPENDIX 6: AIR CONNECTIVITY AND CARGO PERFORMANCE

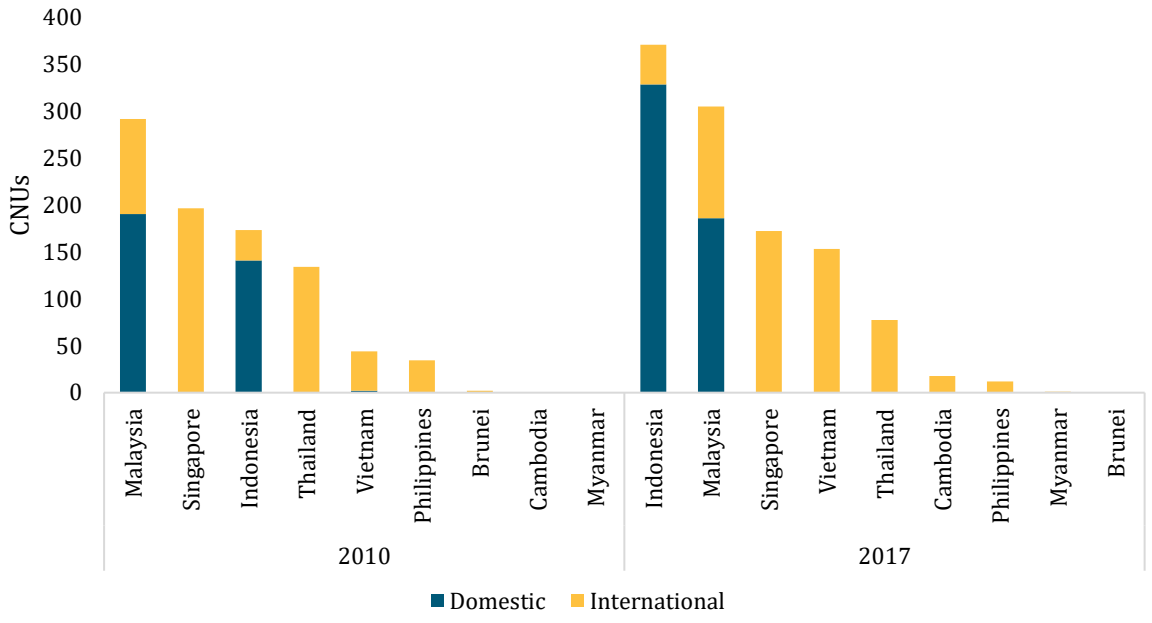
In general, air cargo can be carried via three methods:

- dedicated full freighters
- widebody passenger aircrafts or belly cargo
- RFS or flight trucks

Unlike passenger capacity, belly cargo capacity is unknown until the flight takes off. Therefore, cargo connectivity cannot be measured using capacity. Instead, cargo connectivity can be measured using an F-NetScan model, which takes into consideration the total transportation time (flight time plus transfer time), a hypothetical maximum transportation time offered by airlines and non-stop flight time, as well as, the weekly frequencies of scheduled cargo flights. This measurement is known as CNUs. A direct cargo flight is given a value of one and an indirect connection is scored less than one due to the extra time added by transhipments.

Based on the latest available data from 2017, although Malaysia was connected to 15 countries via scheduled cargo flights—lower than Vietnam and Singapore at 24 countries—Malaysia's cargo connectivity was ranked second in ASEAN with 304.8 CNUs and 339 cargo operations per week. However, 61% of Malaysia's cargo connectivity is constituted by domestic cargo services (see Figure 1).

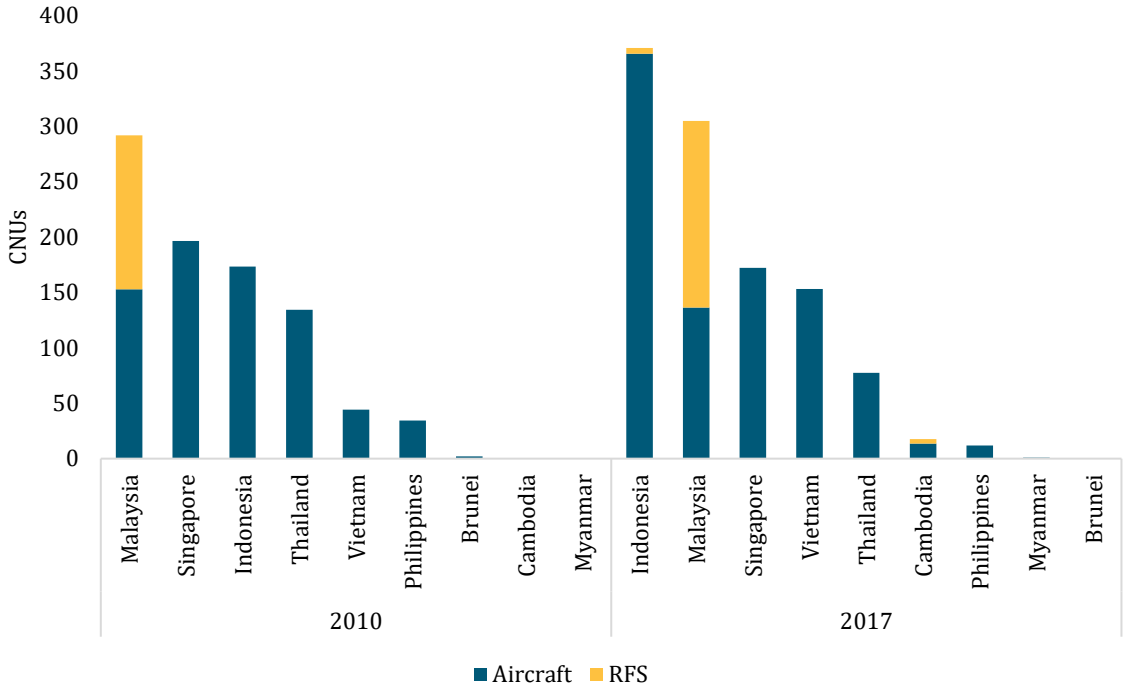
Figure 1: Domestic and International CNUs for ASEAN Countries, 2010 and 2017



Source: MAVCOM Analysis, AirportIS

Airlines may also use RFS to carry cargo between two airports or between ports and airports. In Malaysia, seven airports and two ports serve scheduled air cargo services: KUL, BKI, JHB, KCH, Labuan Airport (LBU), SZB, PEN, Port Klang, and Port of Tanjung Pelepas. Out of 304.5 CNUs in 2017, 55% of Malaysia's cargo connectivity was constituted by RFS. In fact, JHB's, Port Klang's, and Port of Tanjung Pelepas' scheduled air cargo services were only delivered via RFS (see Figure 2).

Figure 2: CNUs Breakdown By Mode of Operation, 2010 and 2017

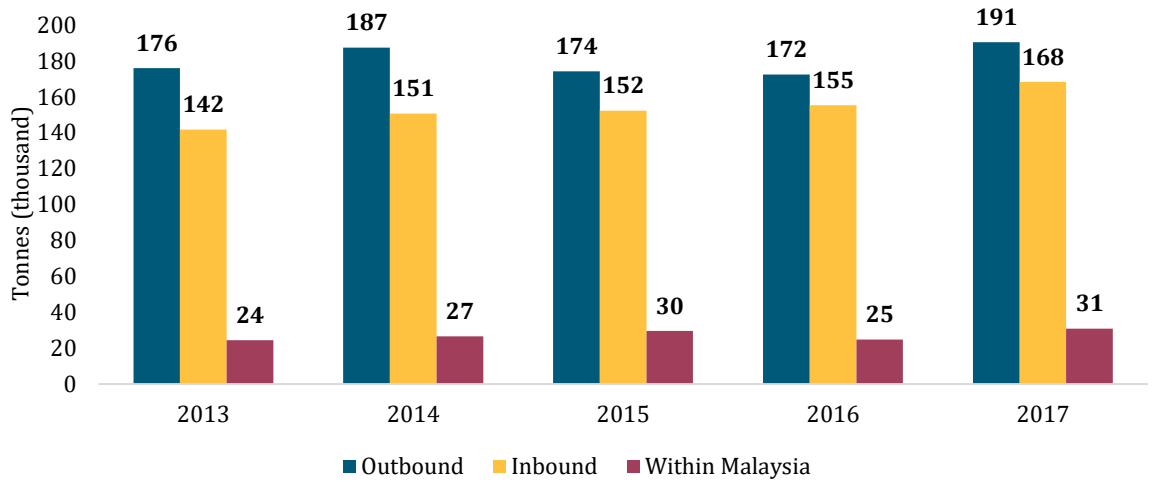


Source: MAVCOM Analysis, AirportIS

Demand-side Statistics

The CNUs provide a method of measuring cargo connectivity from the supply side. From the demand side, FTK is used as a traffic measure as it captures both the weight and distance travelled. Even though domestic connectivity was higher than international connectivity—measured using the weekly frequency of scheduled air cargo flights—in terms of actual tonnage carried, air cargo service providers transported more cargo internationally than domestic. It should be noted that a large part of air cargo is transported via chartered or non-scheduled flights, and this is not captured in the connectivity measurement. Internationally, more cargo was carried outbound from Malaysia then inbound (see Figure 3).

Figure 3: Total Weight Carried by Inbound, Outbound and Within Malaysia, 2013-2017



Source: MAVCOM Analysis, CargoIS

Malaysia's top five trading partners in terms of air cargo weight are the US, Japan, China, Hong Kong, and Germany. 60% of Malaysia's total outbound and 55% of total inbound air cargo were to and from these countries (see Table 1).

Table 1: Malaysia's Top Five Air Cargo Origins and Destinations, 2018

Country	Weight (Tonnes)	
	Outbound	Inbound
United States	32,430	24,459
Japan	26,695	22,667
China	22,279	16,068
Hong Kong	20,498	13,188
Germany	13,034	15,413

Source: MAVCOM, CargoIS

Air cargo services may be served by passenger airlines that have their own freight division operating their own or leased freighter aircrafts such as MAB Kargo Sdn. Bhd., Hong Kong Air Cargo Carrier Limited, and Air Canada Cargo. Air cargo services may also be provided by dedicated all-cargo airlines such as Cargolux Airlines International S.A. and Uni-Top Airlines Co. Ltd. Malaysia has three dedicated cargo airlines; two Air Service License holders: Raya Airways Sdn. Bhd. and MyJet Express Sdn. Bhd; and one ASP holder: Pos Asia Cargo Express Sdn. Bhd. Based on the airlines that utilize the IATA's Cargo Account Settlement System, the top 10cargo airlines in Malaysia by FTK are shown in Table 2.

Table 2: Malaysia's Top 10 Cargo Airlines, 2017

Airline	Outbound (FTK)	Airline	Inbound (FTK)
MAB	185,957	MAB	233,408
China Airlines Ltd.	152,769	Korean Air Lines Co. Ltd.	174,667
Qatar Airways	145,882	China Airlines Ltd.	164,340
Korean Air Lines Co. Ltd.	142,480	Qatar Airways	139,758
Cathay Pacific Airways Ltd.	112,823	Cathay Pacific Airways Ltd.	108,046
Emirates	90,661	Emirates	94,754
Etihad Airways	53,990	EVA Airways Corporation	92,628
Cargolux Airlines International S.A	48,641	KLM	77,424
Turkish Airlines Inc.	47,772	Cargolux Airlines International S.A	65,783
EVA Airways Corporation	46,530	Etihad Airways	59,256

Source: MAVCOM, CargoIS

Out of the 42 airports in Malaysia, 22 airports provide air cargo services. However, of the 22 airports, only 14 airports processed both inbound and outbound cargo. Airports like Sultan Ahmad Shah Airport, Kuantan (KUA) and Sultan Mahmud Airport, Kuala Terengganu (TGG) only handled inbound cargo (see Table 3). This is consistent with the characteristic of air cargo flow which is unidirectional; unlike passengers, goods move in only one direction.

Table 3: Airports Handling Air Cargo, 2017

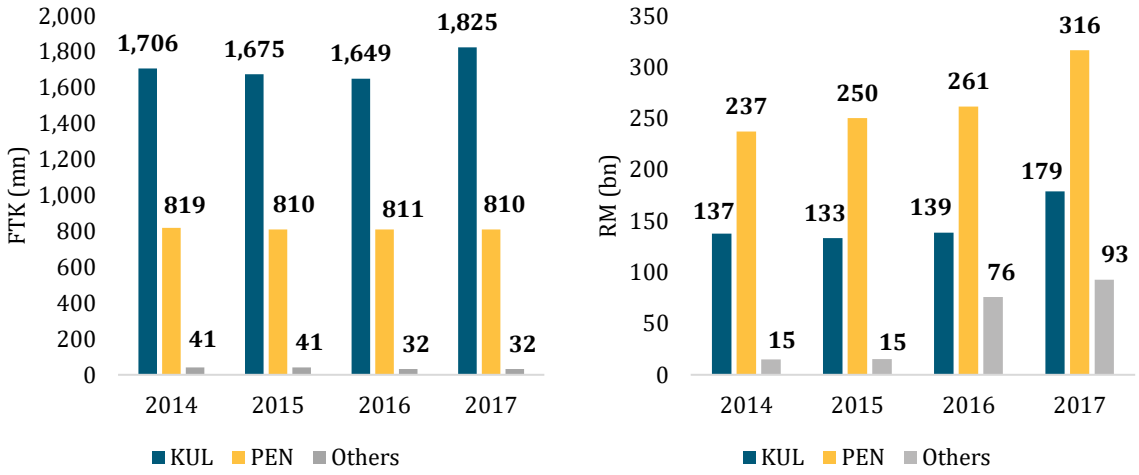
Airport	Total Outbound (FTK)	Total Inbound (FTK)
KUL	860,675	1,001,535
PEN	511,737	298,646
KCH	10,588	16,068
BKI	8,738	12,002
SDK	2,860	840
JHB	1,785	2,039
TWU	1,744	1,621
SZB	1,453	155
LBU	1,268	9,629
BTU	150	1,594
MYY	56	1,898
AOR	40	28
LGK	8	689
SBW	0	858
KBR	-	53
KUA	-	25
LBP	-	10
MUR	-	8
LDU	-	7
TGG	-	7
LMN	-	5
MKM	-	1

Source: MAVCOM, CargoIS

KUL and PEN

Malaysia's top two cargo processing airports in terms of weight are KUL and PEN where 61% and 37% respectively of Malaysia's total air cargo flew through these airports. However, in terms of value, RM316bn worth of imports and exports were processed in PEN in 2017, compared to RM179bn in KUL (see Figure 4). This could be explained by PEN's location which is surrounded by semiconductors or manufacturing based multinational corporations such as Intel, AMD, and Altera who may export electrical machinery and equipment via PEN.

Figure 4: Total Air Cargo by FTK and Value For KUL and PEN, 2014 – 2017



Source: MAVCOM Analysis, CargoIS, DOS

Air Cargo Services as a Trade Enabler

Air cargo services are important in enabling trade and helping countries to join GVCs and move up to higher value-added activities. They are extensively used to transport goods with high value-to-weight ratios, such as parts and components in the electronics sector and pharmaceuticals. Air cargo services are also important for process-critical items where controlled environments and rapid movements from producers to consumers are necessary to ensure high-quality final products such as medical equipment. In the apparel sector, "fast fashion" retailers like H&M and Zara make extensive use of air cargo in their supply chains, as a short time-to-market is critical for their finished goods.[1]

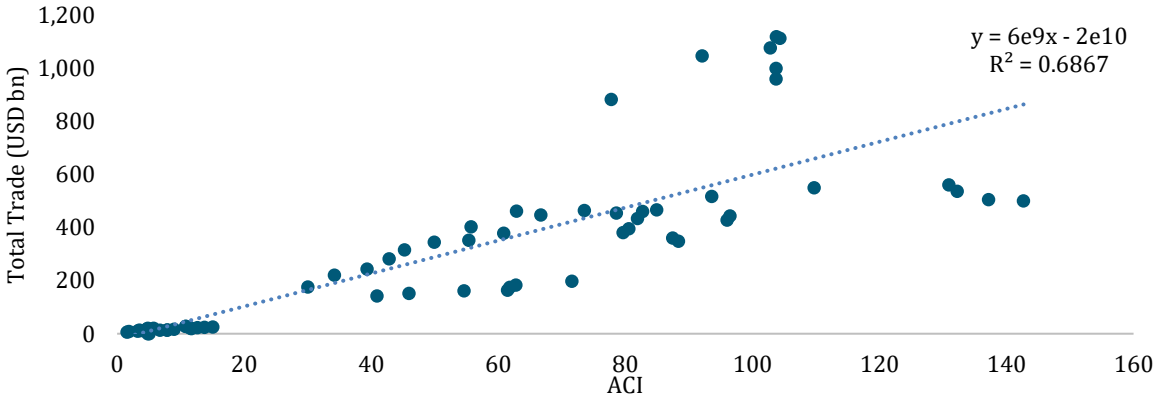
From the supply chain perspective, air cargo services help firms maintain low inventory levels which consequently reduce warehouse costs by moving goods quickly, reliably, and at a reasonable cost. Moreover, they support the chain's just-in-time approach to combining and assembling inputs via express shipments. The speed, reliability, and security of air cargo services are also beneficial in cases when surface transport is disrupted, for example due to natural or social factors. In terms of integrating and moving up the GVCs, the availability of air cargo services is a significant factor for firms in deciding the viability of a new node in a global production network.[2]

[1] Shepherd, Shinghal, and Raj (2016).
[2] Leinbach and Bowen (2004).

Connectivity and Trade

There is a strong positive correlation between connectivity and trade, measured by the total imports and exports of a country as reported by the World Bank (see Figure 5). Connectivity is represented by the ACI which shows the ability of a country to connect to global air transport flows and measured using total scheduled seats, number of destinations served, and size of airports served. We believe that the ACI may represent total (passenger and cargo) connectivity better, as the CNU measured using cargo scheduled data does not reflect the overall cargo connectivity of a country. The reason for this is cargo schedules do not capture charters or non-scheduled cargo operations, which play a non-negligible role in cargo operations.[3] Additionally, the IATA estimates that around 50% of air cargo is carried in the belly holds of passenger aircrafts.

Figure 5: Total Trade vs ACI, 2010 – 2016



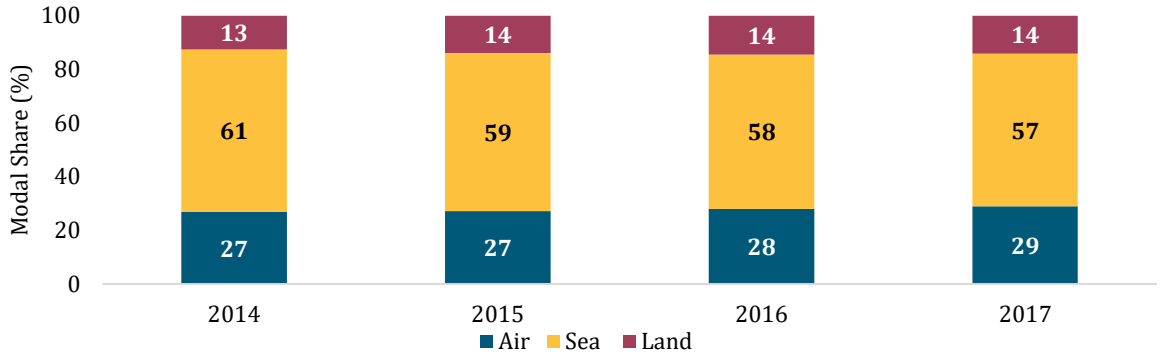
Source: MAVCOM Analysis, World Bank

[3] Geloso-Grosso and Shepherd (2011).

Trade Goods Carried by Air

Air cargo takes a relatively small share of total international trade by weight (758,900 metric tonnes of goods in 2017). Comparatively, total cargo throughput in Malaysian ports amounted to 544 million freight weight tonnes. However, in terms of value, nearly 30% of Malaysia's total trade was carried via air. Currently there are no data available on the breakdown of trade categories by mode of transport for Malaysia. However, major import markets like the US and the EU do disaggregate trade data by mode of transport. Based on data from the EU, among the top categories of items traded by air (more than 45% of its value) are: live animals; plants including cut flowers; precious stones, metals, and coins; electrical machinery; aircraft, spacecraft and parts thereof; musical instruments; pharmaceutical products; articles of apparel and clothing accessories; arms and ammunition; and precious stones, metals, and coins. For Malaysia, between 27% and 29% of imports and exports were carried by air (see Figure 6).

Figure 6: Malaysia's Trade by Mode of Transport, 2014 – 2017



Source: MAVCOM Analysis, AirportIS

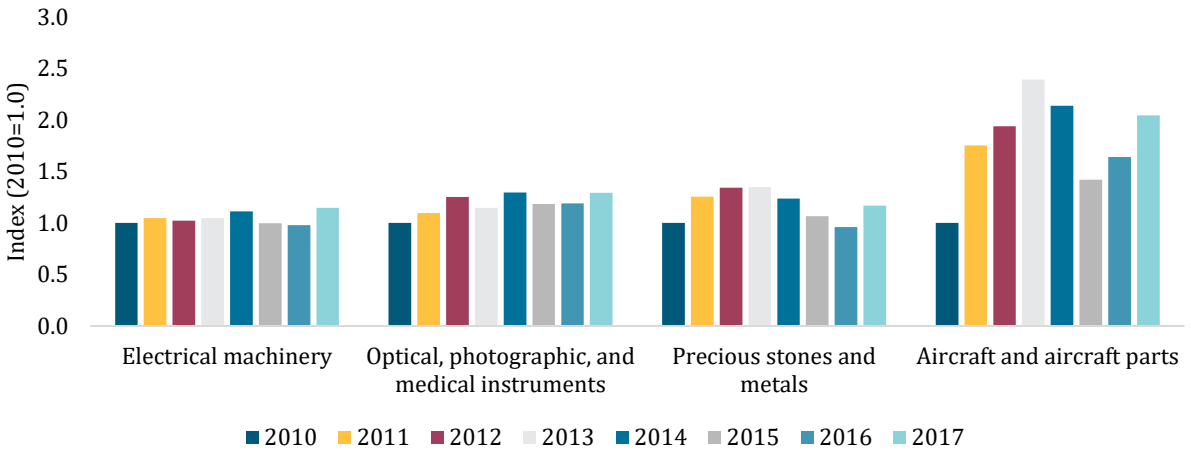
Using the product categories from the EU as a proxy, Malaysia's top four product categories—in terms of value—estimated to be highly reliant on air cargo for shipment in 2017 are: electrical machinery and equipment; medical or surgical instruments and apparatus; precious stones and metals; and aircraft, spacecraft and parts thereof (see Table 4). Notably, trade in aircraft and spacecraft, including parts thereof have had the biggest growth at a CAGR of 10.8% between 2010 and 2017 (see Figure 7).

Table 4: Top 10 Product Categories Traded by Air (Assuming 100% Traded by Air), 2017

Sector	Value (RM mn)
Electrical machinery and equipment	550,813.00
Medical or surgical instruments and apparatus	60,055.09
Precious stones and metals	33,245.65
Aircraft, spacecraft and parts thereof	23,571.94
Apparel and clothing accessories	12,886.37
Pharmaceutical products	6,759.29
Clocks and watches and parts thereof	3,574.44
Articles of leather; saddlery and harness; travel goods, handbags and similar containers'	2,535.86
Live animals	1,096.37
Musical instruments	820.27

Source: DOS

Figure 7: Index of Total Trade in Selected Merchandise Categories, 2010 – 2017

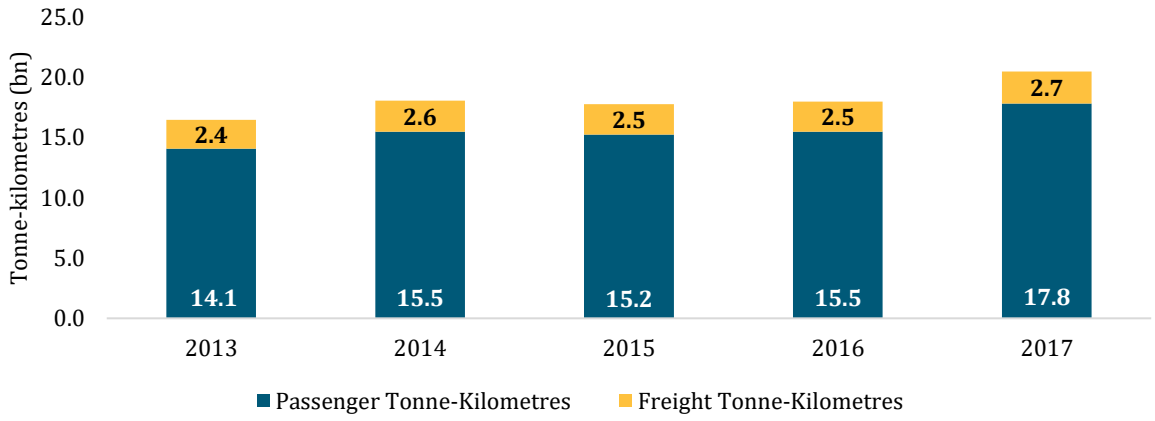


Source: UNDESA Trade Statistics

Freight Tonne-Kilometres and Passenger Tonne-Kilometres

Air cargo services are important in the international trade environment. However, within the aviation industry, the cargo sub-segment plays a minor role compared to the passenger sub-segment. Cargo tonnage constitutes only 13.0% of the 20.5bn international tonne kilometres performed to and from Malaysian airports in 2017. Growth in the cargo sub-segment has also been slower than the passenger sub-segment where the CAGR between 2013 and 2017 was 2.9% for FTK, compared to 6.1% for PTK (see Figure 8).

Figure 8: International Passenger and Freight Tonne-Kilometres Performed by Malaysian Airports, 2013 – 2017



Source: AirportIS, CargoIS

The Air Cargo Product

In the air logistics ecosystem, air cargo services include both the airport-to-airport carriage of goods, as well as, related services performed on the ground, usually by freight forwarders or handling agents. Air logistics may include, for example, truck transport from an airport to a client firm's manufacturing plant, preparation of documents, and in some cases combining several items into a pallet or into a container, as well as, security screening. Quality of service here means reliability and security, including the avoidance of damage or theft.[4] In other words, the process of exporting and importing goods involve many different parties and procedures including customs services and border controls.

The World Bank's Doing Business Report ranks countries in terms of the ease of trading across borders based on scores for documentary compliance (the time and cost associated with compliance with the documentary requirements of all government agencies of the origin, destination and transit countries) and border compliance (the time and cost associated with customs clearance and inspections, inspections by other agencies, and any port and border handling).

[4] Morrell (2011).

Malaysia is currently ranked second in ASEAN (48 globally) after Singapore (45 globally) (see Table 5). Based on the report, the total processing time to import to Singapore is 36 hours—33 hours for border compliance plus three hours for documentary compliance—and the total time to export from Singapore is 12 hours. In comparison, it takes 38 hours and 43 hours to export and import goods to and from Malaysia, respectively. This should be a matter of concern as unnecessary bureaucracy, redundant procedures, and custom-driven delays may have a significant negative impact on firm's foreign sales, through reduced number of shipments, number of buyers and exports per buyer.

Table 5: World Bank Ease of Trading Ranking, 2018

Country	Rank	Border Compliance				Documentary Compliance			
		Export		Import		Export		Import	
		Time (Hours)	Cost (USD)	Time (Hours)	Cost (USD)	Time (Hours)	Cost (USD)	Time (Hours)	Cost (USD)
Singapore	45	10	335	33	220	2	37	3	40
Malaysia	**48**	**28**	**213**	**36**	**213**	**10**	**35**	**7**	**60**
Thailand	59	44	223	50	233	11	97	4	43
Laos	76	9	140	11	224	60	235	60	115
Vietnam	100	55	290	56	373	50	139	76	183
Philippines	104	42	456	120	580	36	53	96	50
Cambodia	115	48	375	8	240	132	100	132	120
Indonesia	116	53	254	99	383	61	139	106	164
Brunei	149	117	340	48	395	155	90	132	50
Myanmar	168	142	432	230	457	144	140	48	210

Source: World Bank

Although connectivity is important, improving trade facilitation initiatives to speed up border processing will allow firms to further capitalize air cargo's key advantage of speed. For example, implementing 24/7 automated customs processing can lead to a country's trade growing by 4.4% over time.[5]

[5] Frontier Economics (2015).

Freedoms of Air for Cargo Airlines

International air transport is governed by a series of bilateral agreements which restrict traffic rights to specified carriers. Establishing a cargo or passenger/cargo airline requires an operator's license and the necessary traffic rights to load and unload cargo. Table 6 shows the freedoms for passenger and cargo airlines between Malaysia and its top air cargo trading partners. Malaysian cargo carriers have limited third, fourth, and fifth freedom rights to China and Japan. However, despite these restrictions, China and Japan are both Malaysia's top trading partners as shown in Table 1. This supports the notion that air cargo connectivity is only an enabler to trade, and trade growth still relies on the factors of demand and supply.

Table 6: Freedoms of Air Between Malaysia and Top Trading Partners

State	Rank (Weight)	Third and Fourth Freedoms		Fifth Freedom		Sixth Freedom		Seventh Freedom	
		L[6]	UL[7]	L	UL	L	UL	L	UL
US	1		X		X				
Japan	2	XX		XX					
China	3	X	X	XX					
Hong Kong	4		X	X					
Germany	5	X	X	X	X		X		
South Korea	6		XX	X	X				
Australia	7	X	X	X	X		X		X
Netherlands	8	XX		XX		X	X		X
UK	9		XX		XX		X		X
Thailand	10		XX	X	X			X	
Taiwan	11	X	X	XX					

Source: ICAO World Air Service Agreements Database

X Cargo X Passenger

[6] Limited: Air traffic rights are limited in terms of frequency, capacity or route.
[7] Unlimited: Air traffic rights are not limited in terms of frequency, capacity or route.

APPENDIX 7: DETAILS OF THE QOS FRAMEWORK

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
Passenger comfort and facilities	Overall satisfaction with airport	Passenger survey specified by MAVCOM	Ongoing survey of departing passengers with minimum 1,000 passengers surveyed per terminal per quarter. Monthly score based on rolling average of previous three months. Passengers selecting the bottom two points on 1 to 5 satisfaction scale considered to be "dissatisfied".	<2% dissatisfied	Information only
	Overall satisfaction with the washrooms			<7% dissatisfied	0.30%
	Cleanliness of the washrooms	Independent inspection by inspectors appointed by MAVCOM	Checklist of 20 items reviewed for each washroom. A washroom passes if 90% of these items satisfactory. Target is maximum percentage of washrooms failing the inspections.	<10% failure	0.30%

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
	Cleanliness of the terminal	Passenger survey specified by MAVCOM	Ongoing survey of departing passengers with minimum 1,000 passengers surveyed per terminal per quarter. Monthly score based on rolling average of previous three months. Passengers selecting bottom two points on 1 to 5 satisfaction scale considered to be "dissatisfied".	<2% dissatisfied	0.46%
	Flight information displays			<4% dissatisfied	0.11%
	Availability of wi-fi			<9% dissatisfied	0.28%
	Ambiance of the terminal			<3% dissatisfied	0.11%
	Wayfinding			<6% dissatisfied	0.28%
	Kerbside congestion			TBC	Information only
	TOTAL PASSENGER COMFORT AND FACILITIES				**1.84%**

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
Operator and staff facilities	Aerobridge availability	Equipment service availability based on MAHB Engineering equipment availability reports	Monthly measurement of percentage of time in month aerobridges available, averaged across all aerobridges in the terminal. Non-availability in peak times is weighted higher than at off-peak times. An allowance is made for planned preventative maintenance.	99.5%	0.21%
	Aerobridge operator available before X minutes of on-chocks time	Operator availability based on aerobridge operator job cards for each departing flight	Monthly measurement of percentage of flights where operator was in position in advance of flight actual on-chock time by target number of minutes.	10 minutes – 95% of arrivals	0.10%
				5 minutes – 99% of arrivals	0.10%
	VDGS availability	Equipment service availability based on MAHB Engineering equipment availability reports	Monthly measurement of percentage of time in month VDGS available, averaged	99.5%	0.10%

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
			across all aerobridges with VDGS equipment in the terminal. Non-availability in peak times is weighted higher than at off-peak times. An allowance is made for planned preventative maintenance.		
	Ramp Wi-Fi	Independent inspection by inspectors appointed by MAVCOM	Monthly reporting covering service availability, weekly on-site random checking of hot-spots and weekly device connectivity testing for Baggage Reconciliation System.	Service availability >= 99.7% / Signal Strength "Good" / Device authentication successful.	0.13%
	Staff washrooms	Independent inspection by inspectors appointed by MAVCOM	Checklist of 19 items reviewed for representative sample of washrooms. A washroom passes if 80% of	<20% failure	0.22%

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
			these items satisfactory. Target is maximum percentage of washrooms failing the inspections.		
	TOTAL OPERATOR AND STAFF FACILIITIES				**0.86%**

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
Queuing times	Queuing time for passenger security search on departure	Automated queue time assessment consistent with requirements set out by MAVCOM (system to be procured and installed by MAHB)	Relevant queues monitored continuously with frequency of a least every 15 minutes. Queuing time defined as time from start of queue (when passenger journey impeded by the queue) to the start of the processing point. Target specifies percentage of time in each month maximum allowed time in queue is exceeded.	10 minutes – 99%	0.52%
	Queuing time for check-in			10 minutes – 99%	Information only
	Transfer queuing			10 minutes – 99%	Information only
	Queuing time for outbound immigration			10 minutes – 99%	Information only
	Queuing time for outbound customs			10 minutes – 99%	Information only
	Queuing time for inbound immigration			10 minutes – 99%	Information only

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
	Queuing time for inbound customs			10 minutes – 99%	Information only
	Kerbside queuing	Automated queue time assessment consistent with requirements set out by MAVCOM (system to be procured and installed by MAHB)	Relevant queues monitored continuously with frequency of a least every 15 minutes. Queuing time defined as time taken for vehicle to enter kerbside drop off area or exit kerbside pick-up area. Target specifies percentage of time in each month maximum allowed time in queue is exceeded.	5 minutes – 99%	Information only
	TOTAL QUEUING				**0.52%**

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
Passenger and baggage flows	Aerotrain TTS (KUL only)	Equipment service availability based on MAHB Engineering equipment availability reports	Monthly measurement of percentage of time in month both TTS trains available. An allowance is made for planned preventative maintenance, including nightly scheduled downtime.	2 trains – 98%	0.25%
		Equipment service availability based on MAHB Engineering equipment availability reports	Monthly measurement of percentage of time in month at least one TTS train available. An allowance is made for planned preventative maintenance, including nightly scheduled downtime.	1 train – 99.5%	0.25%
	Lifts, escalators, walkalators	Equipment service availability based on MAHB Engineering equipment availability reports	Monthly measurement of percentage of time in month lifts, escalators and	99.5%	0.26%

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
			walkalators available, averaged across all items in the terminal (with a higher weighting for items specified as "critical equipment" and a higher weighting for non-availability at peak times. An allowance is made for planned preventative maintenance.		
	Baggage Handling System availability	Equipment service availability based on MAHB Engineering equipment availability reports	Monthly measurement of percentage of time in month the BHS system is not functioning at the required level of capacity. For this purpose, the BHS is considered to consist of four processes – Departures (weighted 35%), Arrivals (35%), Transfer (15%), Hot Transfer (15%), with failure of any process contributing the relevant weighting to the	99.5%	0.26%

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
Passenger and baggage flows			non-availability measure. Within each process, tolerances for failures of each equipment type have been established, beyond which the process is considered to be non-available. Peak and off-peak tolerance levels differ to allow for the different required throughput.		
	Outbound baggage	Short-shipped bags	Monthly measure of number of short-shipped bags due to MAHB (defined as total shortshipped, excluding "others", "handler", "rummage", and "SITA"). Number of shortshipped bags must be lower than target proportion shown, compared to outbound bags (departure + transfer bags).	Short-shipped proportion of o/b bags: 4/10,000 (KLIA) 1/10,000 (klia2)	0.26%

Service quality category	Service quality element	Measurement mechanism(s)	Measurement frequency and data points	Target	Revenue at risk (% of charges)
Passenger and baggage flows	Baggage retrieval – time to first bag	Baggage handling system / manual timings	Measured monthly against first bag standards appropriate to location of flight arrival (MTB, SAT, KUL-T2).	First bag standard met - 95% of flights	0.25%
	Baggage retrieval – time to last bag	Baggage handling system / manual timings	Measured monthly against last bag standards appropriate to location of flight arrival (MTB, SAT, KUL-T2).	Last bag standard met - 95% of flights	0.25%
	TOTAL PASSENGER AND BAGGAGE FLOWS				**1.78%**
GRAND TOTAL					**5.00%**

APPENDIX 8: PUBLIC SERVICE OBLIGATIONS IN THE CIVIL AVIATION SECTOR

Background to Public Service Obligations

In terms of the Malaysian civil aviation sector, the sole example of PSO is the RAS programme which connects remote, sparsely populated, or otherwise inaccessible parts of Sabah and Sarawak. Prior to the establishment of MAVCOM, the RAS programme was governed through the contract between the GoM with the current RAS operator, namely MASwings.

With the establishment of MAVCOM on 1 March 2016, the Commission was empowered to administer and manage PSO schemes in the aviation industry in Malaysia, while the GoM, in particular the MOT, remains the principal policymaker. Pursuant to Section 68 of Act 771, MAVCOM shall, among others, identify criteria or designation of PSO routes, supervise, monitor and manage the performance by airlines of PSOs, and make payment to the airlines for their performance of PSOs.

Public Service Obligations Review by MAVCOM

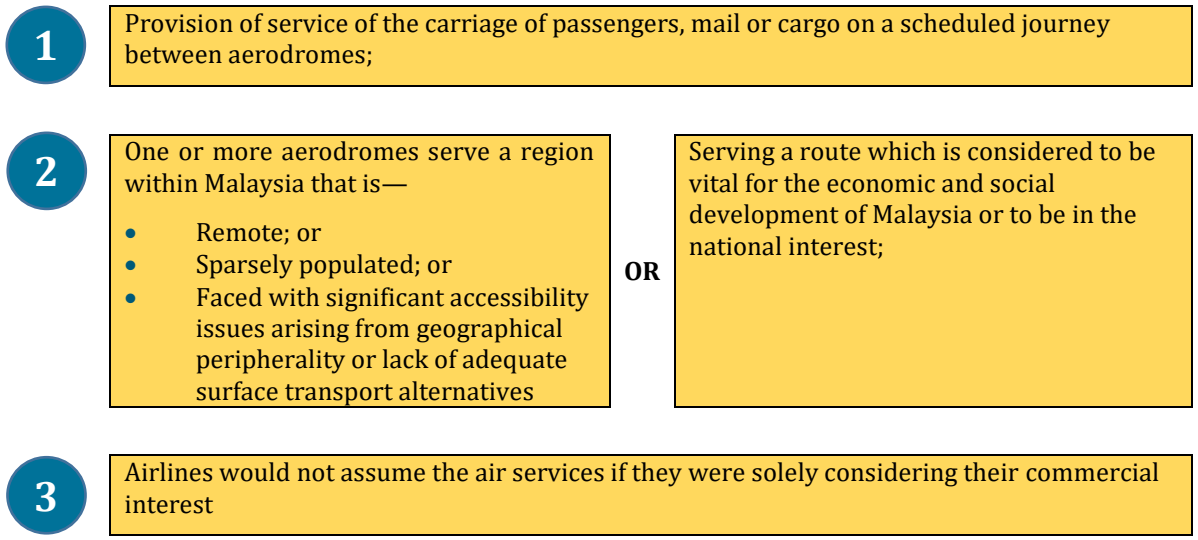
In this regard, MAVCOM, as the advisor to the MOT on PSO policy, has carried out a comprehensive review of the current RAS. The review covers the PSO routes and network in light of the statutory eligibility criteria, the subsidy and monitoring mechanisms, and the future framework for PSO awards. It also considers international trends on PSO, such as in the EU, the US, Australia, and Norway.

In general, international trends demonstrate the adoption of measures to increase the financial and operational efficiency of PSO operators, and in turn, increasing the efficient allocation of subsidies for PSOs to better meet the accessibility needs of the communities served. Typically, this translates into a mechanism that provides for more transparency, competition, and accountability. Features of such mechanism are open tenders for PSO services, relatively shorter PSO contract period of between two to four years, subsidy linked to the financial/operational performance of the PSO operator, and periodical monitoring that includes consumers feedback.

Public Service Obligations Criteria

The criteria for evaluation of routes for PSO, as established by the Act 771, is as per Figure 1 below:

Figure 1: Criteria for Evaluation of Routes



Source: MAVCOM

Against the criteria above, the PSO network had been evaluated to improve the alignment of service levels with current demands and requirements by reallocating subsidies for PSO to the most deserving routes with increased rural connections. This alignment of service levels shall be based on actual load factors, availability of alternative modes of transport for passengers and cargo, and the need for a minimum degree of connectivity. The service levels shall be subject to periodic reviews and may be adjusted according to seasonality.

Rural Air Service Operations and Subsidy Mechanism

At present, MASwings uses ATR 72-500 and Twin Otter DHC6-400 aircraft to serve the RAS routes. The ATR 72-500 is a 68-seater aircraft and serves the major airports within the RAS network. The Twin Otter DHC6-400 aircraft has a passenger capacity of 19 persons, but actual capacity varies depending on the overall load, measured by totalling passenger and baggage weight. The Twin Otter DHC6-400 is used to serve STOLports.

Under the previous RAS agreement, the GoM's payments to MASwings consisted of aircraft leasing cost, subsidy for all expenditure that exceeds revenue (i.e. operational losses)—subject to a pre-determined Loss Cap, and payment of incentive, which is an apportionment of the difference between actual losses and the Loss Cap as stipulated by the RAS contract. This subsidy mechanism means that the total subsidy paid to MASwings was solely dependent on the financial losses from RAS operations, regardless of the service level rendered by the operator.

In the new PSO agreement, the formulation to calculate subsidies and incentives is changed into a scheme which consists of a subsidy for reimbursement of actual loss incurred (i.e. excess of expenditure over revenue) and payment of management fees or imposition of penalty that is tied to operational performance—based on agreed KPIs and financial performance—measured via reduction in actual losses incurred. Subsidy for payment of aircraft lease remains the same where the GoM will reimburse MASwings for the lease rental of each aircraft utilized for RAS operations.

The proposed management fee and penalty under the current subsidy and incentive mechanism allows the GoM to embed an element of risk and reward into the payment of subsidy to MASwings. Payment of management fee is based on financial performance (lower actual loss vs. forecast)—whereby any cost savings is to be shared equally with the GoM—and achievement of operational KPIs. In the event that the operational KPIs are not met, a penalty will be imposed on MASwings. Furthermore, the recommended operational KPIs are to be primarily service-related, to incentivize operational efficiency by the RAS operator.

Challenges

The review of the RAS programme also identified several new routes between the existing destinations and newly-deemed eligible destinations that fulfil the PSO criteria. The new routes between existing destinations can be catered for using existing aircraft and available capacity by reorganizing and rescheduling the RAS network. For the new destinations, the provision of PSO depends on the availability of infrastructure, especially the STOLports. The construction of infrastructure such as STOLport is not included in the PSO subsidy and the costs will need to be borne by the GoM separately.

Moreover, the current provision for PSO in Act 771 only caters for the performance of PSO by airlines and does not cover expenses incurred by airport operators. The subsidy under PSO is meant to make a non-economical route commercially viable to an airline. Despite the STOLports being financially and economically unviable as the RAS routes, no similar consideration is given in terms of providing subsidy to the airport operator. At present, all the STOLports are operated by MAHB, which cross-subsidizes the cost of operation for the STOLports with revenue earned from other airports. MAHB exempts STOLport users from paying any PSC and therefore does not generate any revenue from these STOLport operations.

MAVCOM has proposed amendments to the RAS routes, as stated in Table 1.

Table 1: Current and Proposed RAS Routes

Route	Current RAS agreement		New PSO agreement	
	Aircraft	Frequency/ week	Aircraft	Frequency/ week
Miri – Mulu	ATR	14	ATR	14
Miri – Limbang	ATR	21	ATR	21
Miri – Bintulu	ATR	14	ATR	14
Miri – Sibu	ATR	28	ATR	28
Bintulu – Sibu	ATR	14	ATR	14
Kuching – Bintulu	ATR	21	Commercial	
Kuching – Sibu	ATR	35	Commercial	
Kuching – Miri	ATR	21	Commercial	
Kuching – Mulu	ATR	7	ATR	4 – 7
Kuching – Limbang	-	-	ATR	3
Miri – Limbang	DHC	2	Discontinue DHC, served by ATR	
Miri – Lawas	DHC	38	DHC	38
Limbang – Lawas	DHC	2	DHC	2
Miri – Ba'kelalan	DHC	3	DHC	3
Lawas – Ba'kelalan	DHC	3	DHC	3
Miri – Bario	DHC	14	DHC	14
Marudi – Bario	DHC	7	DHC	7
Miri – Marudi	DHC	28	DHC	24
Miri – Long Lellang	DHC	2	DHC	3
Marudi – Long Lellang	DHC	2	DHC	2
Miri – Long Akah	DHC	2	DHC	2
Marudi – Long Akah	DHC	2	DHC	2
Bario – Ba'kelalan	DHC	1	DHC	1
Sibu – Mukah	DHC	4	DHC	2 or 3
Mukah – Miri	DHC	7	DHC	7
Mukah – Bintulu	DHC	2	DHC	2
Mukah – Kuching	DHC	21	DHC	24 or 28
Miri – Long Seridan	DHC	2	DHC	2
Marudi – Long Seridan	DHC	2	DHC	2
Miri – Mulu	DHC	5	Discontinue DHC, served by ATR	
Miri – Long Banga	DHC	2	DHC	2
Marudi – Long Banga	DHC	2	DHC	2
Bintulu – Belaga	DHC	2	See #39	
Kuching – Tanjong Manis	DHC	7	DHC	7
Mukah – Tanjong Manis	DHC	7	Discontinue PSO service	
Bario – Long Seridan	-	-	DHC	1 or 2
Bario – Long Lellang	-	-	DHC	1 or 2

Route	Current RAS agreement		New PSO agreement	
	Aircraft	Frequency/ week	Aircraft	Frequency/ week
Kapit & Bukit Mabong	-	-	New PSO points. Frequency and aircraft to be confirmed.	
Belaga	-	-		
Long Silat	-	-		
Additional service for cargo /special purposes between Miri and Bario, Ba'kelalan, Long Seridan, Long Lellang, Long Akah and Long Banga.	-	-	1/week for each route or as per demand by DHC	
KK - Lahad Datu	ATR	35	ATR	35
KK – Sandakan	ATR	28	Commercial	
Sandakan – Tawau	ATR	14	ATR	14
KK – Tawau	ATR	28	Commercial	
KK – Labuan	ATR	28	ATR	28
KK – Kudat	DHC	3	DHC	2
KK – Sandakan	DHC	3	Commercial	
Kudat – Sandakan	DHC	3	DHC	2
Long Pasia	-	-	New PSO points. Frequency and aircraft to be confirmed	
Semporna	-	-	Not PSO eligible	
Miri – Labuan	ATR	35	ATR	35
KK – Miri	ATR	28	Commercial	
KK – Mulu	ATR	7	ATR	7
KK – Limbang	DHC	3	DHC	3
KK – Lawas	DHC	2	DHC	2

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