GROSTLOG 2019
Global Research on Sustainable Transport & Logistics

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

The Disruptive Environment of The ASEAN Aviation Industry in The Post ASEAN Single Aviation Market (ASAM): The Malaysian Perspective

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Abstract. The deregulation introduced by the proposed ASEAN Single Aviation Market (ASAM), posed a great challenges to the aviation industry in the region. The industry will need to face the most challenging environment ever. This is even more challenging than during the deregulation era that allowed the introduction of the low cost carrier in the early 2000. The airlines operating in the region will have to totally change to match the new rules of the new playing field. It is so disruptive in nature that those failing to change and adapt to the new challenges, their survival will be at stake. The decreasing yield due to massive competition from the lower entry barrier, low cost new player will make survival be difficult. The uncontrolled new capacity offered by these new competitors will quickly surpassed the growth in demand, creating great difficulty to existing player in achieving their level of profitability. The new travel demand for newer routes will not be viable to the existing players with the current fleet type that they operated. This study is intended to assess the aviation industry in the region and identify a strategy for surviving in the post ASAM era. An analysis of a sample market from the region, in this case the Malaysian market, was conducted. The market is analysed from the perspective of its current nature of demand, in term of sizes and stage length. This is then followed by benchmarking this nature of demand to the two more advance market of the industry, the US market and the European market. These markets were chosen for the same deregulation fate it has been through. Analyses on the post deregulation industry structure of both of these markets were then used as the benchmark for the sample market comparison. The viability of the benchmark structure in the sample market is further analysed using the Design to Market Index (DM Index ©). The analysis findings lead to a conclusion on the proposed new structure for the airlines industry in the ASEAN region.

Keywords: disruptive environment, aviation industry, single aviation market

1. Introduction.

The deregulation introduced by the proposed ASEAN Single Aviation Market (ASAM) [1], posed a great challenges to the aviation industry in the region. The industry will need to face the most challenging environment ever. This is even more challenging than during the deregulation era that allowed the introduction of the low cost carrier in the early 2000. The airlines operating in the region will have to totally change to match the new rules of the new playing field. It is so disruptive in nature that those failing to change and adapt to the new challenges, their survival will be at stake.

The decreasing yield due to massive competition from the lower entry barrier, low cost new player will make survival be difficult. The uncontrolled new capacity offered by these new competitors will quickly surpassed the growth in demand, creating great difficulty to existing player in achieving their level of profitability. The introduction of the low cost carrier in Malaysia, in 2001 recorded rapid growth of traffic demands [2]. The accompanying growths in the available capacity were also reported. Figure 1 shows this phenomenon [3].

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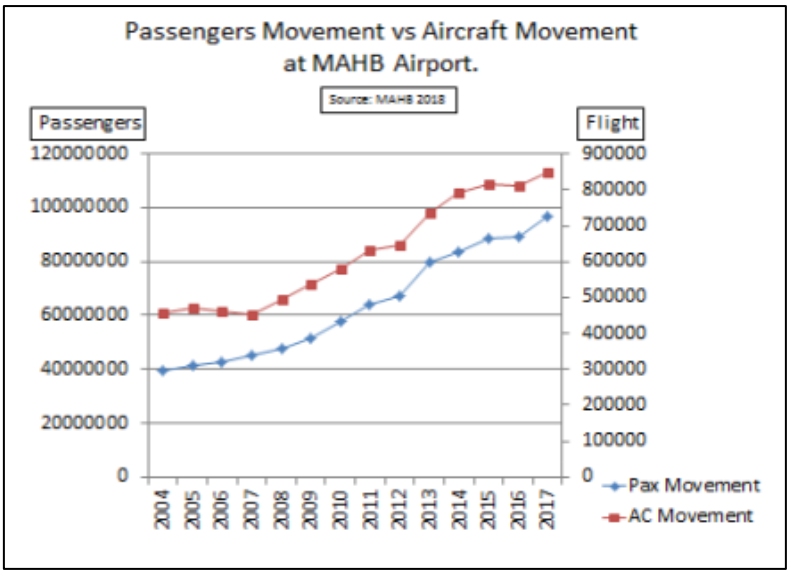

Figure 1: Passengers vs Aircraft Movement at MAHB Airport [3].

The new travel demand for newer routes will not be viable to the existing players with the current fleet type that they operated. IATA reported in 2017, that the return airfare of the airlines industry has been in the downward trends. When compared to the 1996 figures, the 2017 yield is at -64%. Figure 2 depicted the reports for the year 2015 through 2017 [4].

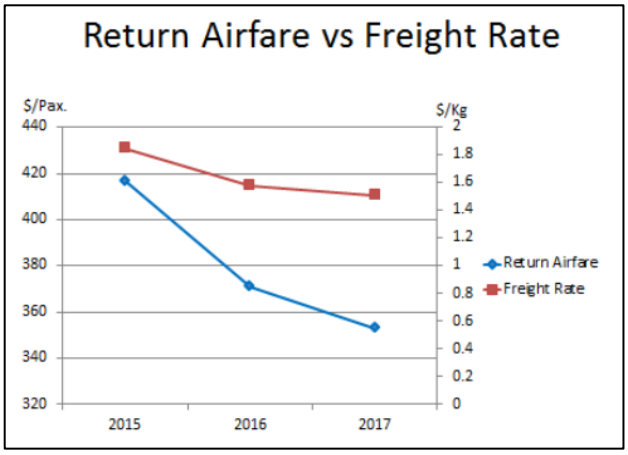

Figure 2: Return Airfare versus Freight Yield. [4]

With the dismantling of the aviation regulations such as relaxation in the airline ownership and removal of the need to abide to the nine freedoms of the air frameworks, make starting an airline to be much easier. The increase in the number of airlines will surely offer more capacity to the existing market. The same effects were seen in the European deregulation experience [5].

The challenge in hand would be how to sustain viability in the situation. An analysis of how low cost carrier compete with the existing full service airlines in 2010 can give us the feel of the impact of the new situation. Figure 3 depicted the comparison between the two in term of its unit yield, unit cost, breakeven load factor and the actual load factor thus its profitability [6] [7] [8].

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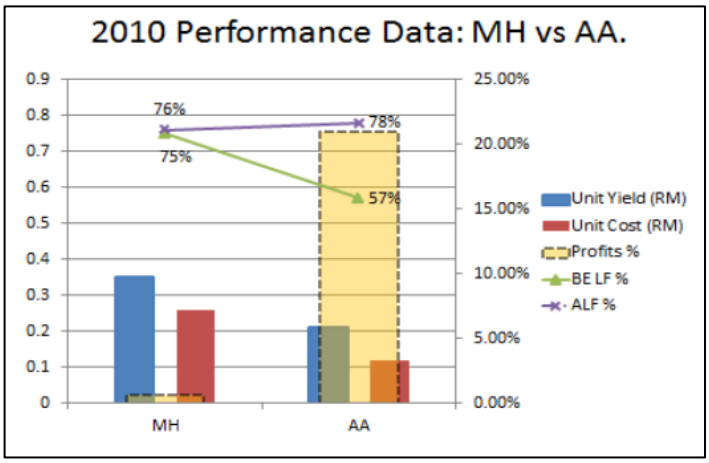

Figure 3: 2010 Performance Data: FSC versus LCC

2. Literature.

2.1 *The Aviation Regulation.*

Regulations in the commercial aviation are mostly bilateral, under the framework first introduced in the 1944 Chicago Convention [9]. The right to operate across another country are guided by the freedom of the air framework while fares are set by the governments in the bilateral agreement. Currently there are nine freedom of the air under the framework. These are freedom number one through nine, as described in the following figure 4 and 4a [5].

Freedoms of the Air

First Freedom of the Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State or States to fly across its territory without landing (also known as a ***First Freedom Right***).

Second Freedom of the Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State or States to land in its territory for non-traffic purposes (also known as a ***Second Freedom Right***).

Third Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down, in the territory of the first State, traffic coming from the home State of the carrier (also known as a ***Third Freedom Right***).

Fourth Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to take on, in the territory of the first State, traffic destined for the home State of the carrier (also known as a ***Fourth Freedom Right***).

Fifth Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down and to take on, in the territory of the first State, traffic coming from or destined to a third State (also known as a ***Fifth Freedom Right***).

Source: *Manual on the Regulation of International Air Transport* (Doc 9626, Part 4)

Figure 4: ICAO Freedom of the Air-first to fifth

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Advances in Transportation and Logistics Research
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Freedoms of the Air
ICAO characterizes all "freedoms" beyond the Fifth as "so-called" because only the first five "freedoms" have been officially recognized as such by international treaty.

Sixth Freedom of The Air - the right or privilege, in respect of scheduled international air services, of transporting, via the home State of the carrier, traffic moving between two other States (also known as a ***Sixth Freedom Right***). The so-called Sixth Freedom of the Air, unlike the first five freedoms, is not incorporated as such into any widely recognized air service agreements such as the "Five Freedoms Agreement".

Seventh Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State, of transporting traffic between the territory of the granting State 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.

Eighth Freedom of The Air - the right or privilege, in respect of scheduled international air services, of transporting cabotage traffic between two points in the territory of the granting State on a service which originates or terminates in the home country of the foreign carrier or (in connection with the so-called Seventh Freedom of the Air) outside the territory of the granting State (also known as a ***Eighth Freedom Right*** or "**consecutive cabotage**").

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 (also known as a ***Ninth Freedom Right*** or "***stand alone" cabotage***).

Source: *Manual on the Regulation of International Air Transport* (Doc 9626, Part 4)

Figure 4a: ICAO Freedom of the Air-sixth to ninth.

2.2 The Aviation Deregulation.

Deregulation is meant to dismantle the regulation freedom of the air framework introduced by ICAO. This reduces the government control of the commercial side of the aviation industry like the privatisation of government owned National Airlines and allowing the airlines to set its own airfares. As its impact, barrier of entry for new airlines / business models are removed, therefore ease the new airlines participation thus increasing competition [5]

2.3 The Regulation and Deregulation in the United State of America (USA)

In the US, an Air Commerce Act 1926 was introduced to empower the Secretary of Commerce with the operational and safety authority. The Civil Aeronautic Act 1938 adds in the economic authority to the empowerment. At that time the Civil Aeronautics Board (CAB) will require air carriers to obtain a certificate to authorise it to serve a particular point or route [5]. The then 16 existing carriers were categorised as the "Trunk Carrier". In 1944 CAB created a new category "Feeder Airlines" to serve the population of smaller communities [5]. In 1952, this airline category was renamed as "Local Service Airlines". Around the same period, a third category carrier was developed from the fixed based and air taxi services, that ultimately being named as "Commuter Airlines" [5].

In 1962, local service airlines were allowed to modify their route structures, partly to reduce the needs for subsidies for supporting the local service airlines. Additionally, the CAB relaxed the requirements of making stop at every intermediate certified point on every flight and allowing them to drop service to places with less than 5 passengers per day on average. These improved the financial performance of the local airlines. This resulted in removal of many cities from the local service airlines, therefore a major gap were created in the air service communities. This role was then replaced by the commuter airlines.

The 1978 deregulation act provides a mean for commuter airlines to replace trunk and local service carriers at certain points of their networks, as the trunk carriers operates hub and spoke system, commuter airlines supported them as their feeder [5]. Commuter airlines were allowed to operate schedule services on 30 seaters' airplane which was then increased to 50 seaters. Airlines in this category, like the larger airlines were required to obtain operating

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Advances in Transportation and Logistics Research
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certification and comply to a more stringent operating and reporting restrictions, from the now Federal Aviation Administration (FAA).

The deregulations of the US aviation industry are dismantling the domestic operation, safety and economic regulation imposed on the industry throughout its growth from its beginning in the year 1926.

2.3.1 The Role of Regional Airlines in the US.

In the US, regional airlines operate short- and medium-haul scheduled airline service, connecting smaller communities with larger cities. Almost all of these regional airlines operate under codeshare agreements with one or more of the major carriers. This commercial arrangement will be discussed in 2.3.2. In 1994, prior to the deregulation, these regional airlines average trip length was at 210 miles. This has increased to 417 miles by the year 2004. The passengers carried grow from 57.1 million to 134.7 million, a growth of 135.9%. So is the revenue passenger miles grow 367.6% and available seat miles grow by 248.1%. Table 1 summarises these statistics on the regional airlines in the US.

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Growth, 1994 - 2004
Enplaned Passengers (millions)	57.1	57.2	61.9	66.3	71.1	78.1	84.6	82.8	98.4	113.0	134.7	135.9%
Average Passenger Trip Length (miles)	210	223	230	231	245	267	299	311	333	384	417	98.6%
Revenue Passenger Miles (billions)	12.0	12.8	14.2	15.3	17.4	20.8	25.3	25.7	32.8	43.3	56.2	367.6%
Average Seating Capacity (seats per aircraft)	23.7	24.6	25.1	25.9	27.7	29.8	31.7	33.5	35.1	37.7	39.9	68.4%
Available Seat Miles (billions)	23.7	25.5	26.9	27.8	30.4	35.8	42.6	44.2	52.6	66.2	82.6	248.1%
Departures Completed (millions)	4.63	4.69	4.46	4.38	4.33	4.38	4.46	4.20	4.41	4.88	5.25	13.4%

Table 1: Statistic of the US Regionals Airlines 1994 to 2004 [10]

2.3.2 The Commercial Arrangement between the Major Airlines and its Regional Partners.

The relationship between the major carriers and the regional airlines are in the form of code sharing and governed by one of the two types of organizational forms. A regional may be a wholly owned by the major airlines or maybe an independently owned and contracted with one or more major carriers [6].

The contract between the independent and the major airlines historically are in the form of revenue sharing agreements or known as the pro-rate agreements. Regional agree to serve a set of routes on behalf of the major airlines and coordinate its schedule and aircraft allocation to those routes with the major's airlines schedule. In exchange, the major airlines permit the use of its service marks and logos and list the regional's flights in the computer reservation system under its two letter designator code. The regional airlines receive an allocated portion of the revenue from each passenger that flies with them as part of an itinerary that connects with one of the major airlines' flight. Fares are set by the major and marketing and ticketing are carried out by the major airlines.

More recently the industry has shifted towards fixed-fee or capacity purchase agreements. Under the contract the regional airlines receives a fixed payment, based on block hours flown, for each departure that it operates on behalf of the major airlines. This fixed payment is calculated to cover the regional's airlines operating costs and to guarantee a reasonable rate of profit. The regional airlines may also receive incentive payment based operational performance

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
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such as on time performance and baggage handling. Under this agreement, the major airline retains all revenue from flights operated by its regional partners. This arrangement was found to be more attractive to the regional airlines as it eliminates all of the risk faced by them. This fixed fee payment with a guaranteed profit margin insulates them from both demand risk and cost risk. For the major airlines it provides them with a greater control over the regional airline, in particular over its schedule [5].

2.4 The European Deregulation.

Europe before the deregulation: The European Union begin its aviation industry from independent members nations being govern by each nations historic regulatory frameworks. It was an attempt to integrate all these regulatory frameworks guided by the ICAO into a single aviation market regulation. Prior to 1993, the European aviation industry were fragmented, whereby traffic rights between members states were based on the bilateral air services agreements. Every member states have their own full service national carrier (FSNC) with the exception of Sweden, Norway and Denmark where SAS is their national carrier. The economic efficiency was difficult to achieve due to limitation in consolidation opportunity, constrained by the national restrictions in the bilateral agreements.

In 1993, the European Union (EU) internal markets were liberalised. By 1997, the cabotage right was also liberalised allowing freedom for the member nations' FSNC to operate intra EU routes. Merger of the FSNC limitation were also removed, so is the cross border ownership of airlines. The community airlines were granted external traffic rights instead of the FSNC [6].

2.4.1 The Commercial Impacts of EU Deregulation of its Aviation Industry.

The liberalisation removed the obstacles for merger and acquisition among the EU FSNC. Nevertheless it is still made difficult for those having a bigger network outside the EU, as these routes are still partly under the regime of bilateral with the old ownership regulation. These are taking a longer time as the FSNC change its ownership to the Community ownership right. To bypass the issues many FSNC forms cooperation through code sharing and alliance without losing their traffic right. However, the benefit of economies of scale, scope and density are limited [6].

In the Low Cost Carrier (LCC) end, the market post deregulation showed a very dynamic development. Large number of LCCs entered the market, from new entrance as well as a newly developed business model. Airline like Ryanair shifted from its regional operation into LCC and others founded by FSNC, to fend off new intensity of competition. These new LCC offers parallel market between secondary airport rather than primary airport for FSNC or direct flights rather than through a hub. Others played the role of feeder airlines. [6] Figure 5 shows the post liberalisation capacity growth inGermany.

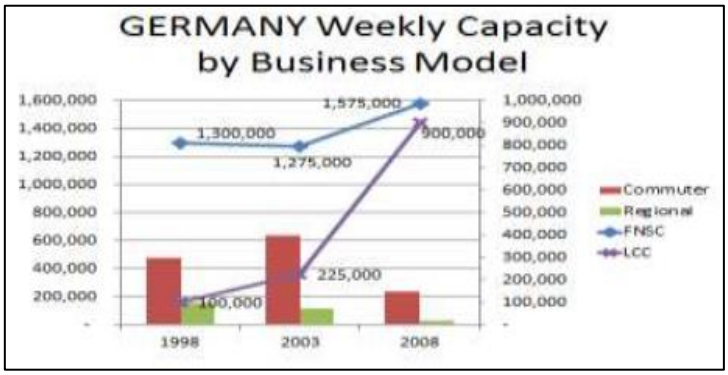

Figure 5: Post Liberalisation; Airlines Capacity by Business Model. [11]

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Figure 6 depicted the post liberalisation capacity growth in Spain.

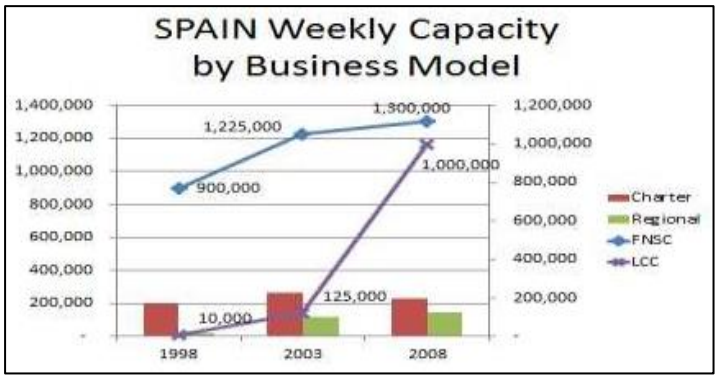

Figure 6: Post Liberalisation; Airlines Capacity by Business Model. [11]

Figure 7 shows the post liberalisation capacity growth within the geographical Europe.

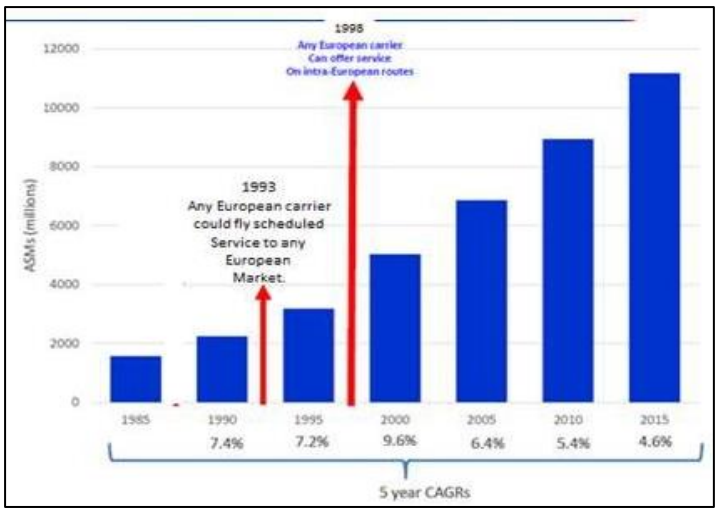

Figure 7: EU Airlines Capacity Growth through Liberalisation Process. [5]

2.4.2 Regional Aircraft Market in the EU.

The regional aviation which operates short-haul flight represents the largest portion of the world's aviation system. 50 % of passengers worldwide fly sectors below 500NM or 920km and 30% fly sectors below 300NM or 550km [7]. Europe and CIS represent 20% of the worldwide regional aircraft operation while representing 45% of the routes operation below 300NM. [7] Figure 8 depicted the share of worldwide regional aircraft routes [7].

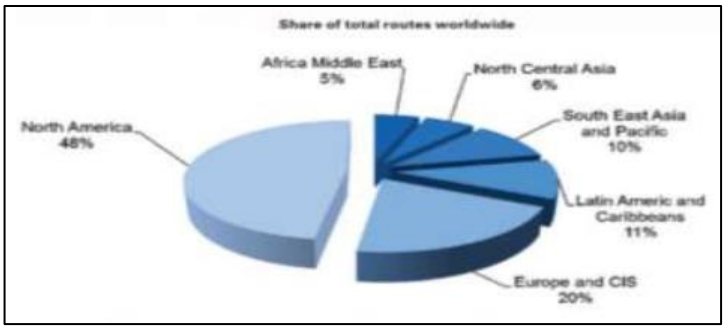

Figure 8: Share of Total Routes Worldwide operated by Regional Aircraft [12]

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Figure 9 shows the share of regional aircraft routes up to 300NM.

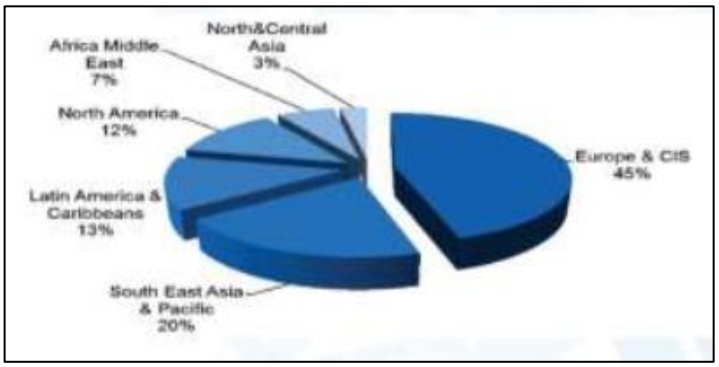

Figure 9: Share of Routes Up To 300NM Worldwide operated by Regional Aircraft. [12]

The aggressive development of new LCC in the EU has mainly taken away FSNC market share, while regional operation share remain stable. [7] as shown in figure 10.

Figure 10: European Regional Association Member Airlines Market Share versus LCC and FSNC.

2.5 The ASEAN Single Aviation Market (ASAM) proposition.

As early as the year 2004 ASEAN has designated air transport as one of the twelve priority sectors for economic integration. After the ratification of the 2010 Multilateral Agreements for the FullLiberation of Passengers Air Ser vices (MAFLPAS) by all the 10 member states, in 2016, a greater level of integration as stated in the AEC blueprint 2025 [1]. The key elements of the ASAM aredepicted in table 2 [12].

The Key Elements of ASAM.	
❑ The Economic Elements. ❖ Market Access; ❖ Charters; ❖ Airline Ownership & Control; ❖ Tariffs; ❖ Commercial Activities; ❖ Competition Law and Policy/ State Aid; ❖ Consumer Protection; ❖ Airport User Charges; ❖ Dispute Resolution and ❖ Dialogue Partner Engagement.	❑ The Technical Elements: ❖ Aviation Safety; ❖ Aviation Security and ❖ Air Traffic Management.

Table 2: The Key Elements of ASAM in the AEC. [13]

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Based on these elements, just like the us and the EU liberalisation, the ASAM proposition will progressively liberalise and communalise the commercial, ownership and airworthiness framework within the ten ASEAN member nations and bilateral & multilateral agreements with the non ASEAN countries. It is therefore logical to expect the liberalisation impacts to be along the same line.

2.6 The Design to Market Index (DM Index©).

In the author's analysis of airline fleet planning, it was observed that matching its design and market characteristic were not given sufficient importance for the final decision. Being a planning that would decide on the long-term future of the airline, wrong decision could lead to burden of inefficiency for a long time. The recent decommission of the A380 aircraft by many airlines so soon after its induction is an example of such decision error. The DM index© is a mean to evaluate the match on the design of a particular airplane to the operating characteristic of its network market. The elements being considered are listed in figure 11.

Figure 11: The elements in the Design to Market Index.

2.7 Airline Industry Structure.

Lesson from the industry history, liberalisation opened up doors towards new business models. Ever since FSNC domination was brush aside with the introduction of the LCC. Today after the first new airline model was introduced as the result of the 1978 US liberalisation, the industry horizon has looked very different. LCC that is now challenged by the Ultra-Low Cost Carrier (ULCC) or evolved into the Hybrid Low Cost Carrier while FSNC moving away into the Premium Full Service Carrier. Figure 12 depicted this scenario topology [12].

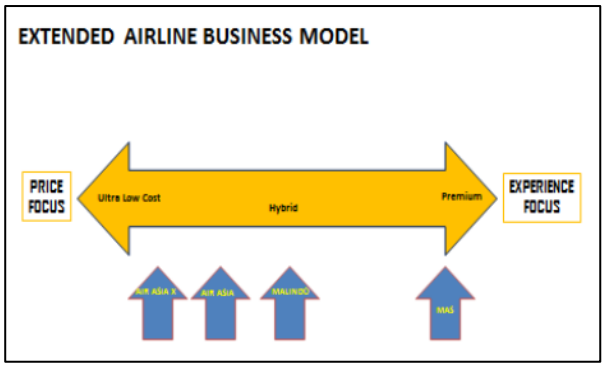

Figure 12: The Extended Airline Business Model. [14]

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The three business models adopted different customer proposition accordingly, "Now everyone can fly" represent the ULCC, "You Above All" reflects the Hybrid, while "A Great Way to Fly" symbolise the Premium FSC. [12].

The upcoming deregulation of the ASEAN Aviation market would drive new models to survive the disruptive competitive environment additionally complicated by customers' behaviour of the millennium and presence of the new airplane technology. Nevertheless learning from the two more advance markets that has the experience of surviving their liberalisation could help the region industry to see the light at the end of its tunnel.

3. The Malaysian Domestic Market.

The Malaysian domestic market was analysed in term of its network, routing stage length, traffics demand and growth rate. The total Malaysian domestic markets are served by the FSNC, LCC and Hybrid Carriers. These do not include the shorter haul, low density routes categorised as the "Rural Air Services", which is not the focus of this study.

A total of sixty six routes, including ten of which are to and from Singapore, were looked at. These traffic demands were based on the Malaysian Transport Ministry report for the year 2017 [12].

For the year being analysed, the total passenger traffics recorded were at 24,358,510. Based on the networks, 60% or 14,714,103 passengers are for route with a stage length of 500km (270 miles) or lower. Twenty four of these routes are below 300km (162 miles), serving 8,041,015 passengers or 33% of the total market. There are 33 routes above 1000km (540 miles) but serving a total of 12,683,481 passengers, which represent 52% of the traffics.

Majority of these domestic routes are served by the smallest airplane of the operating airlines fleet, in the form the Boeing B737-800/900 or the Airbus A320. A small number of the domestic routes are operated from the Subang Airport, served by the ATR 50/ 75 turbo-propeller aircraft. These routes are not included in this study.

The 3 years statistic showed a y-o-y traffics growth between 8% (2016) and 13% (2017). Appendix 1 depicted the characteristic of the Malaysian domestic market

4. The Observations.

The three aviation markets, that is the US, EU and Malaysian Domestic are compared and tabulated to gain further understanding of its nature and characteristic. The comparisons are in the network, traffics, operating model, airplane utilised and future challenges faced. These are depicted in table 3.

Markets	Industry Structure	Average Stage Lengths (miles)	Operating model	Relationship Major to Regional.	Airplane utilised	Future challenges
US Market	• Trunk carrier. • Commuter	• 730 to 1500 • 314.	• Major carrier. • LCC. • Regional.	• Contractual. • Ownership.	• Regional Jet.	• New business model.
EU Market	• Inter State. • Intra state • Feeder.	• Above 500. • Below 500.	• FSNC • LCC • Regional	• Independent. • Ownership.	• RJ 50 • RJ 80 • RJ 100	• New business model.
Malaysian Market.	• Domestic. • Rural Air Service.	• 52% > 540. • 60% < 270.	• FSNC. • LCC. • Hybrid.	• Nil.	• B737-800/90. • A 320. • ATR 50/ 70. • ATR 50.	• Liberalisation. • New Business model.

Table 3: A Comparison between Post Liberalisation Aviation Market between the US, The EU and the Malaysian Market. [10] [11] [15]

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The major similarities observed are in term of the industry structure, average stage length, operating model and challenges. The industry structure mirror both the US and EU industry with the domestic and rural operation. Majority of the stage length of its network are at below 500 miles. All business model in the US and EU, existed in the Malaysian industry except the Regional Airlines model.

The major differences are in term of the regional airlines operation and aircraft fleet type. The Malaysian operators utilised the narrow body Boeing B737 and Airbus A320. No regional airplane is used except for the turbo-propeller ATR 50/ 70 airplane to support the Subang Airport Hub operation.

5. DM Index (DMI©) Analysis.

In order to understand the issues at hand in the current utilisation of narrow body airplane as against the Regional airplane, by the Malaysia operators, the situation is analysed using the MD Index discussed. The airplane design in term of its maximum range, recommended turn-around time, passengers' seat configuration and the others elements of the DM Index inputs are calculated into the maximum capacity availability.

The network from the aspect of the traffics, airport operating time, runaway length, facilities to support TAT etc., were then added in into the plots to determine the match by calculating the index. The analysis was conducted on the Boeing B737 – 800/ 900, Airbus A320 and Regional airplane like the Embraer E 190

		Operating plan		Aircraft Characteristic					Schedules Operation	
						Design				
Case	Index	Capacity	Range	Range	Speed	TAT	Cycle	Utilisation	Cycle	Utilisation
EJ 95	0.669	114	500	4537	890	0.33	5.43	16.90	0.9	11.3
A320	0.562	189	500	6480	904	0.5	7.67	16.83	1.1	9.5
B737-800	0.464	184	500	5768	946	0.75	6.85	16.03	1.3	7.4

Table 4: Applying the DM Index on the Malaysian Market Data.

It was noted that the lower index was found on the narrow body airplane (B 737 & A 320) for the market analysed. Factoring the findings into the calculation of trip unit cost lead to the conclusion of how the E190 aircraft that have the highest DM index for the market. This can means between 30% to 38% lower capital unit cost therefore the trip unit cost. Figure 13 demonstrate these findings.

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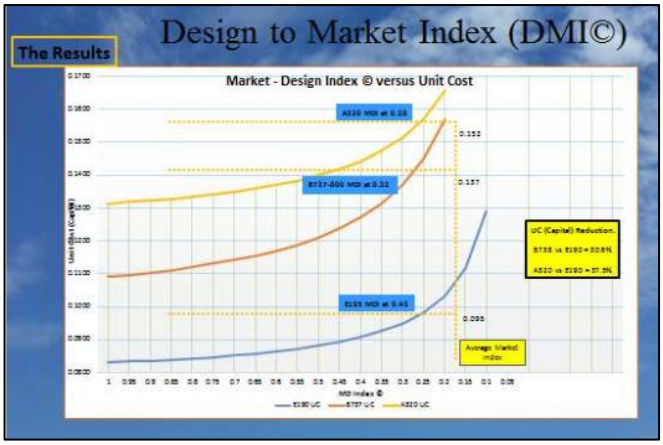

Figure 13: The outcome of the Malaysian Market Analysis using the MDI technique Stage Length of 300 miles.

6. Conclusion.

The ASEAN Aviation Industry will be similarly exposed to the disruptive competitive environment as the result of the removal of entry barrier, just like the two more advance market, the US and the EU. A change need to take place in the way aviation industry operates to survive the declining yield and rising cost. In conclusion, the following recommendations were established for the Malaysian Domestic Market; as well as the other ASEAN members' nation.

1. The Malaysian domestic market could benefit a lower unit cost and trip unit cost if served utilising the Regional airplane. As example the latest technology regional airplane such as the Airbus A210 and the Embraer E 195.
2. As the findings leverage a lot on the capital unit cost, this could be even enhanced if the airplane are purchased at the highest discounts available (for volume purchases) like what is being done in the LCC market.
3. To avoid the complication of additional airplane fleet type for the operators, thus increasing the operating cost from its maintenance, crewing etc., the introduction of the regional aircraft would be best implemented by creating a tier 2 in the airline industry for the Regional operators. These will be further enhanced as new independent regional airlines' operators could be structured just like the US and EU arrangement, through a fixed fee on a capacity purchased agreement. Having independent with smaller regional airplane would also mean lower operating expenses in term of crewing expenses and navigation charges.
4. The new air transports model suggested is depicted in figure 14.

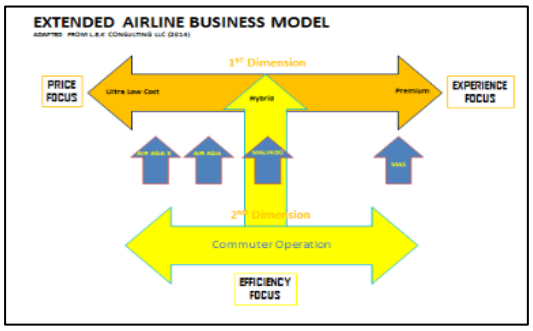

Figure 14: Revised Extended Airline Business Model. [14]

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
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ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

Appendix 1

The Characteristic Of The Malaysian Domestic Market

From	To	Air Distance	2015	2016	2017
BKI	LBU	113.43	65,813.00	54,746	53,479
LBU	BKI	113.43	65,423.00	56,952	54,569
PEN	LGK	129.85	117,178.00	128,102	126,158
LGK	PEN	129.85	117,264.00	127,639	131,608
BTU	MYY	171.06	18,291.00	16,990	15,942
MYY	BTU	171.06	18,236.00	17,693	15,468
SDK	TWU	175.93	17,172.00	16,206	15,519
TWU	SDK	175.93	16,992.00	16,301	16,229
MYY	LBU	177.27	65,589.00	54,930	52,364
LBU	MYY	177.27	68,022.00	56,383	53,921
KUL	KUA	201.99			
			104,579.00	100,672	103,786
KUA	KUL	201.99	105,906.00	100,312	105,273
KUL	JHB	250	338,542.00	409,596	459,271
JHB	KUL	250	307,879.00	379,273	426,866
BKI	LDU	270.95	72,552.00	71,333	64,918
LDU	BKI	270.95	71,763.00	69,032	62,901
BKI	MYY	290.68	117,791.00	117,954	113,497
MYY	BKI	290.68	117,564.00	116,358	111,903
BKI	TWU	291.94	263,190.00	293,834	314,842
TWU	BKI	291.94	265,394.00	292,736	316,022
KUL	SIN	297.46	1,778,154.00	1,905,245	2,017,886

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Advances in Transportation and Logistics Research
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SDN	KUL	297.46	1,773,576.00	1,935,123	2,066,669
MYY	SBW	319.7	50,498.00	51,091	44,648
SBW	MYY	319.7	50,756.00	50,778	45,114
KUL	PEN	325.19	953,934.00	1,063,353	1,136,391
PEN	KUL	325.19	930,573.00	1,031,161	1,129,211
KUL	TGG	331.42	282,975.00	303,998	327,631
TGG	KUL	331.42	277,591.00	299,312	321,264
KUL	KBR	385.86	592,593.00	640,156	635,284
KBR	KUL	385.86	584,634.00	629,990	626,989
KUL	AOR	409.63	195,447.00	232,000	243,100
AOR	KUL	409.63	194,887.00	229,983	242,002
KUL	LGK	455.01	846,461.00	940,591	968,381
LGK	KUL	455.01	843,447.00	934,010	953,073
PEN	SDN	602.3	547,042.00	608,637	660,736
SDN	PEN	602.3	554,727.00	617,980	681,188
BKI	SBW	608.53	34,826.00	34,337	33,027
SBW	BKI	608.53	34,993.00	34,832	31,986
KCH	SDN	706.33	85,582.00	124,926	133,790
SDN	KCH	706.33	92,946.00	131,979	141,772
LGK	SDN	728.3	79,032.00	90,436	98,732
SDN	LGK	728.3	82,926.00	93,310	100,328

ISSN: 2622-5778 (online)
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KCH	JHB	742.34	167,153.00	175,217	181,923
JHB	KCH	742.34	166,435.00	173,078	181,988
BKI	KCH	803.4	204,722.00	204,943	214,971
KCH	BKI	803.4	200,127.00	200,839	209,927
KUL	KCH	969.86	1,072,935.00	1,152,578	1,150,633
KCH	KUL	969.86	1,082,567.00	1,151,298	1,154,937
KUL	SBW	1142.64	326,003.00	345,427	364,552
SBW	KUL	1142.64	325,257.00	344,863	359,836
MYY	JHB	1183	26,597.00	23,697	27,476
JHB	MYY	1183	26,500.00	24,638	27,884
KCH	PEN	1195.2	77,104.00	78,131	78,857
PEN	KCH	1195.2	78,160.00	79,673	79,629
KUL	MYY	1373.65	381,233.00	414,506	422,890
MYY	KUL	1373.65	380,434.00	409,896	418,693
BKI	SIN	1431.47	85,562.00	89,434	94,770
SIN	BKI	1431.47	92,946.00	96,237	102,380
BKI	JHB	1453.99	127,175.00	121,548	120,818
JHB	BKI	1453.99	128,704.00	125,162	123,797
KUL	LBU	1528.29	177,956.00	168,459	160,962
LBU	KUL	1528.29	179,139.00	170,868	165,371
KUL	BKI	1628.89	1,207,719.00	1,298,707	1,415,436
BKI	KUL	1628.89	1,198,588.00	1,280,318	1,401,922
KUL	TWU	1830.35	281,521.00	306,403	327,538
TWU	KUL	1830.35	276,864.00	300,837	317,582

End