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STUDY OF HONG KONG'S AVIATION INDUSTRY:
CURRENT CHALLENGES AND FUTURE STRATEGIES

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CONTENTS

EXECUTIVE SUMMARY	i
BACKGROUND	1
1. RECENT AVIATION TRENDS	12
a) International trends	12
b) Regional trends.....	15
c) Mainland trends	16
d) Conclusions.....	22
2. CHALLENGES AND CHANGE FACTORS	25
a) Impact of global recession	25
b) Implications of Direct Cross-Straits air services.....	27
c) The Challenge of China's High speed railways for PRD aviation.	36
3. HONG KONG AND ITS COMPETITORS	45
a) Developments among PRD airports	45
b) Potential for airport cooperation: a UK comparison	58
4. GOVERNMENT POLICIES	70
a) The Basic Law	71
b) Airport infrastructure supply	72
c) Air service networks	76
d) The Air Transport Licensing Authority	77
e) Regulating for Low Cost Airlines.....	79
f) Capacity of local air traffic management	80
g) HK-PRD Cooperation Policy Issues.....	81
5. POSSIBLE FUTURE SCENARIOS	89
a) Goldilocks – based on Scenario 2:	93
b) Gloom and Doom – based on Scenario 15:	95

c) **Business as usual – based on Scenario 9:97**

**6. CONCLUSION: HONG KONG’S AVIATION FUTURE – PROSPECTS
AND CHALLENGES100**

EXECUTIVE SUMMARY

1. This study of the challenges facing Hong Kong's aviation economy was launched in October 2009. It comprised more than 60 interviews with industry experts, academics and officials, four "Focus Group" discussions, attendance at two major aviation conferences, and study visits to Beijing, Taipei, Guangzhou, Shenzhen and Macau.
2. **Hong Kong remains Asia's leading international passenger and air cargo hub.** In spite of a sharp reversal in the wake of the 2008 crash in the global economy, aviation activity has rebounded strongly, with first half 2010 data suggesting that all lost ground has been recovered. Whether this economic recovery can be sustained remains uncertain, but most important, **the crash does not appear to have affected Hong Kong's comparative attractiveness** as an aviation hub in Asia. No available data pointed either to a decline in Hong Kong's overall share of Asia-Pacific or inter-continental air traffic, or to an erosion of its intra-Asian hubbing role as Beijing and Shanghai build more direct links with other Asian cities like Singapore and Bangkok.
3. **The aviation industry faces new challenges as economic activities apparently move to the north.** As China stimulates domestic consumer activity as part of its strategy to maintain growth following the global crash, and the massive PRD manufacturing economy dedicates more resources to meeting domestic consumer demand, so Hong Kong's long-standing locational advantages as a mediator between China and the global economy for China's export manufacturing activity - are likely to be eroded. A rising share of consignments is likely to travel directly north from PRD factories, rather than south to Hong Kong. The hub thus faces a "**challenge of relevance**" that will demand a careful strategic response from both business and Government.
4. **The growth of other major Asian airports in recent years appears not to have challenged Hong Kong's aviation hub status.** While Beijing and Shanghai are set to become much larger than Hong Kong, these hubs tend to serve a different hinterland region, and will anyway be under

relentless pressure to accommodate – and give priority to – fast-growing domestic demand. There also appears to be no concrete evidence that any south east Asian hubs have in any material way eroded Hong Kong’s regional supremacy as a passenger and cargo hub, though it is too early to discern whether the China-ASEAN Free Trade Agreement, which came into force in January 2010, results in any diversion of cargo transshipment business to Mainland cities in response to the FTA inducements to build direct trade between China and south east Asia.

5. **Competitive challenges to Hong Kong are thus likely to be most intense from within the PRD** – from Guangzhou and Shenzhen. While Beijing leaders have repeatedly affirmed their support for Hong Kong as an aviation hub, the likelihood is for intensifying competition. At present, Hong Kong’s superiority in reliability and efficiency, and in the clustering of relevant services and skills, is clearly recognized, but this is likely to be eroded steadily over the coming decade.
6. Predictions of extremely strong domestic growth in air passenger and cargo activity – illustrated by plans to build 100 new airports in the coming decade – suggest that **the ambitions of Guangzhou Baiyun to challenge Hong Kong as an international transfer hub will be constrained**. But it would be strategically naïve to take this for granted, since Baiyun has the capacity – based on the potential to construct five runways – to grow far beyond Hong Kong’s size.
7. The establishment of direct air links across the Taiwan Straits linking Taipei and Kaohsiung with 33 Mainland cities will dilute Hong Kong’s importance as an intermediary between Taiwan and the Mainland, leading to a short term decline in passengers and cargo between Hong Kong and Taipei, but **the development of direct links is unlikely to have any long term negative impact on Hong Kong** as an aviation hub. There are three main reasons: first, this opening up process is driven primarily by political factors and so will be gradual. Hong Kong carriers will have ample time to make adjustments. Second, the opening up process is likely to generate a massive increase in Cross-Straits travel, benefiting Hong Kong in the process even in the absence of a monopoly throttlehold on

Taiwan-Mainland travel. Finally, Hong Kong's carriers continue to build services to other new destinations in countries like India and Russia, which in the medium to long term will more than compensate for any short term decline in Taiwan-Hong Kong business. The potential exists for Taipei to build strong air cargo business, but this is currently being quite tightly restrained by Mainland officials, with Taiwan's aspiration to build a transit hub role being firmly blocked. It is unclear how long this will continue.

8. The introduction of **high speed rail services has the potential to be far more disruptive**. At present, Mainland transport planners do not believe the ambitious national high speed rail network will in any way dilute pressure to build and grow the air infrastructure. It is possible they are wrong, in which case China is in the process of constructing a massive oversupply of airport capacity, and airports like Shanghai and Guangzhou might respond by building international hubbing services to compensate for a shortfall in domestic aviation activity. This would intensify head-to-head competition with Hong Kong as the region's leading hub for inter-continental passenger and cargo services. Even if planners are right, there seems little doubt that the introduction of high speed rail services will quite dramatically alter patterns of air travel in the Mainland, reducing demand in some hubs, and augmenting it in others. In this context many new hubs are likely to emerge which are at present not significant. Hong Kong's carriers, and its air services negotiators, will need to be keenly responsive to this fast-changing demand pattern.
9. **Hong Kong appears still to be unattractive as a hub for Low Cost Carriers (LCCs)**, though in the past few years several small LCCs have started operations. Though there have been calls for changes in Government policy to provide inducements for LCC (and indeed Executive Jet) operations, it appears there are four other strong reasons for limited LCC development: 1) the fragmented nature of Asia's air space, which limits the flexibility that in the US and Europe underpins LCC competitiveness; 2) LCC reliance on a single passenger revenue stream in competition with legacy carriers that benefit from income

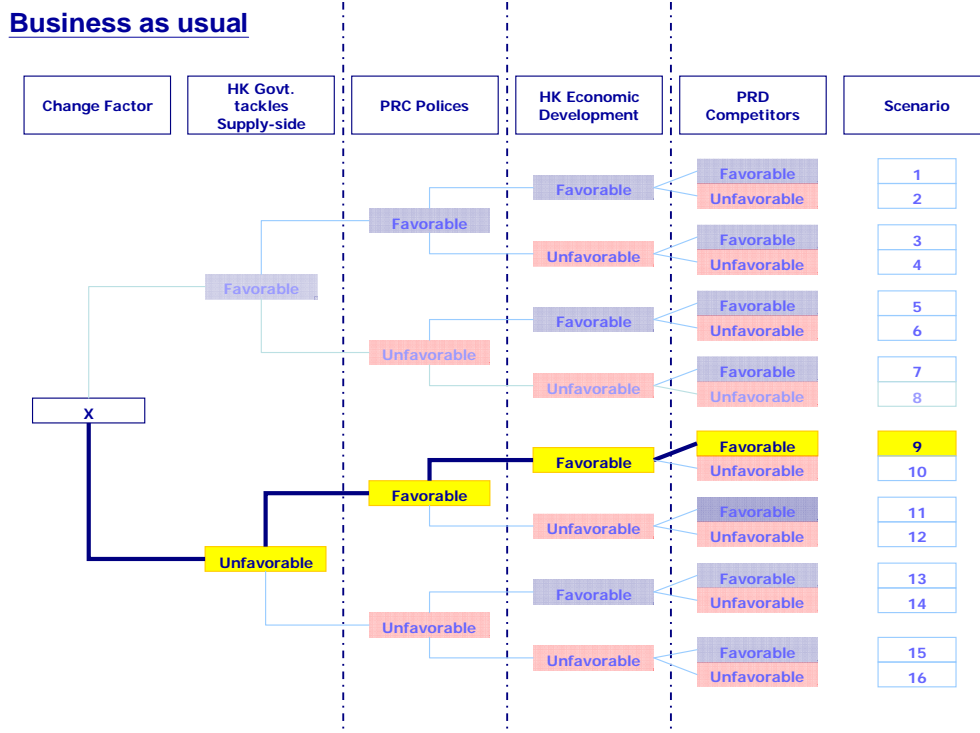
streams from both cargo and passengers; 3) landing fee arrangements that are perceived to favour large aircraft, 4) limited access to/from Mainland destinations, and inflexibility on frequent addition and subtraction of routes and frequencies in response to seasonal market demands – factors which are likely to be pivotal to the long term success of Asian LCCs, whether operating from Hong Kong or (for example) Shenzhen and 5) the challenge of competing against two of Asia’s most competitively aggressive and astute “home carriers”.

10. On balance, despite these challenges, it appears probable that **Hong Kong will continue to see strong demand growth** in the coming decade, in particular if it remains successful in building Hong Kong as a regional headquarter hub – a key driver for aviation activity.
11. This suggests that **the single most significant determinant of Hong Kong’s competitive future as an aviation services hub will be the Government’s ability to build capacity** to accommodate this demand. This means winning public support not just for a third and fourth runway, but intensified multimodal interconnectivity with Shenzhen airport and also with the Western PRD via the Macau-Zhuhai bridge.
12. **Collaboration with neighbouring airports** (such as Shenzhen and Macau) will not address Hong Kong’s runway capacity issue. Suggestions that collaborative and complementary development between Hong Kong and other PRD airports (Macau and Shenzhen are most often mentioned) can absorb future demand and pre-empt the need for new runways have not been validated in our research. A detailed examination of the inter-relationships between London’s five airports shows **negligible evidence of collaborative development**, with each of the five airports performing contrasted roles that are interestingly similar to the different roles being performed across the PRD’s five airports. A global “scan” to detect any single example of collaborative development has so far drawn a blank, though a more rigorous examination of this issue would be valuable.
13. A further important determinant will be the administration’s success or failure in **collaborating with PRD counterparts** to improve air traffic

management, facilitating more efficient use of regional air space, and augmenting Hong Kong's hourly take-off and landing capacity. Expedited introduction of new air traffic management computer systems will be important, as will be joint training of air traffic controllers, and specific remedies to challenges arising from Mainland use of metric measures alongside Hong Kong's use of imperial measures.

14. Since on balance it appears likely that the Government will face significant challenges in winning public approval for additional runway capacity, the **most likely scenario for Hong Kong's aviation hub going forward is sub-optimal**. Overall demand growth is likely to be strong; Mainland authorities will remain committed to supporting the hub; PRD competitors are unlikely to improve to the extent that they are able to undermine the hub. But in the absence of an ability fully to accommodate fast-rising demand, Hong Kong appears set to "gift away" much future passenger growth to Shenzhen and Guangzhou. This will lift the critical mass of air services to these hubs, strengthen their local clusters of aviation-related skills and services, and significantly erode Hong Kong's current competitive advantages. **Since it is possible that HKIA may be capacity-constrained as early as 2015, this erosion could begin sooner, and be speedier, than currently anticipated.**

Most Likely Scenario for Hong Kong’s Aviation Future:



15. In a scenario that could be regarded as highly likely, the Government fails to win approval for a new runway, or does so at a pace that is too slow to enable HKIA to keep abreast of rising demand, recognizing too late the limited potential for synergistic development with Shenzhen.
16. Even though Beijing’s policies towards Hong Kong remain sympathetic, and Guangzhou and Shenzhen airports fail to improve their service offering – and even though headquarter operations remain firmly based in Hong Kong – Hong Kong airport’s capacity to increase passenger and freight services through the hub becomes increasingly constrained from 2015. Airlines have no choice but to divert large numbers of services to Guangzhou and Shenzhen, and the pace of this diversion rises towards the end of the decade.
17. This capacity squeeze will force HKIA to “revert” to the situation prevailing in the final years of Kai Tak operations, in which the need to maximize passenger flows forces a bias towards wide-bodied aircraft. Low cost carrier operations, and much narrow-bodied traffic with

Mainland cities, settle on other hubs. So too does the growing executive jet business. Air cargo volumes stagnate as the airport struggles to find capacity for smaller dedicated freighters. In this scenario, **Hong Kong essentially “gifts” future growth to Guangzhou and Shenzhen – just as Heathrow airport in London** must now do to Gatwick, following the UK Government decision to abandon plans for a new Heathrow runway.

摘要

1. 從 2009 年 10 月開始，本研究小組著手研究“香港航空業發展的挑戰和機遇”課題。在整個研究過程中，研究小組共訪談了 60 餘位業界專家、學者和官員，舉行了 4 次圓桌討論，參加了 2 次主要航空業會議，並到北京、台北、深圳、香港和澳門等 5 個城市進行研究和訪談。
2. 本研究表明，目前香港仍然是亞洲區內最重要的航空客運、貨運樞紐。儘管 2008 年金融海嘯對香港航空業帶來較大衝擊，但是整體業務回升很快。2010 年上半年數據顯示，航空業務已基本回升到海嘯前水平。雖然目前數據暫時不能判斷行業復蘇是否持久，但我們認為，香港作為亞太區航空樞紐的競爭力沒有因此次金融海嘯受到較大影響。在這一時期，香港在亞太區內、洲際之間的客貨運量並沒有明顯減少。在北京和上海開通了更多的東南亞航線之後，香港業務也未受到太大影響，其在亞洲區內轉運業務沒有隨之減少。
3. 經濟活動北移對香港航空業產生新的挑戰。金融海嘯後的中國更注重提升內需，作為保持其經濟增速的另一動力，中國大陸企業也作出相關調整，側重內需市場的開發。在這種情況下，香港長久以來的“中介人”優勢有可能有所減低。貨物可能從珠三角工廠直接向北轉移，而不是向南通過香港出口至歐美。經濟需求北移，使得主要行業的生產、運輸活動將可能向華南、華北地區集中，這必然對香港在珠三角的戰略地位和經濟作用產生影響，政府與業界需要對此加以關注，制定相應政策。
4. 近年來，一些主要亞洲機場紛紛崛起，對香港機場的航空樞紐地位衝擊不大。雖然北京、上海的民航業發展將大大超過香港，但他們主要服務國內內陸城市，以及快速增長的內需市場。現時仍未有實質數據證明東南亞地區的幾個航空樞紐對香港航空樞紐地位已造成關鍵性影響。但是隨着《中國－東盟全面經濟合作框架協議》的正式生效，東南亞地區航空樞紐也有可能影響香港航空業的發展。

2010 年 1 月中國－東盟自由貿易區正式啓動之後，中國與東南亞之間的直接貿易往來將大大加強，必然相應產生大量航空貨運與客運需求。這就有可能改變東南亞地區航空樞紐之間的競爭格局，對香港在此區域內的戰略地位產生新的衝擊，然而，目前的數據還不足以判斷來自東盟的影響。

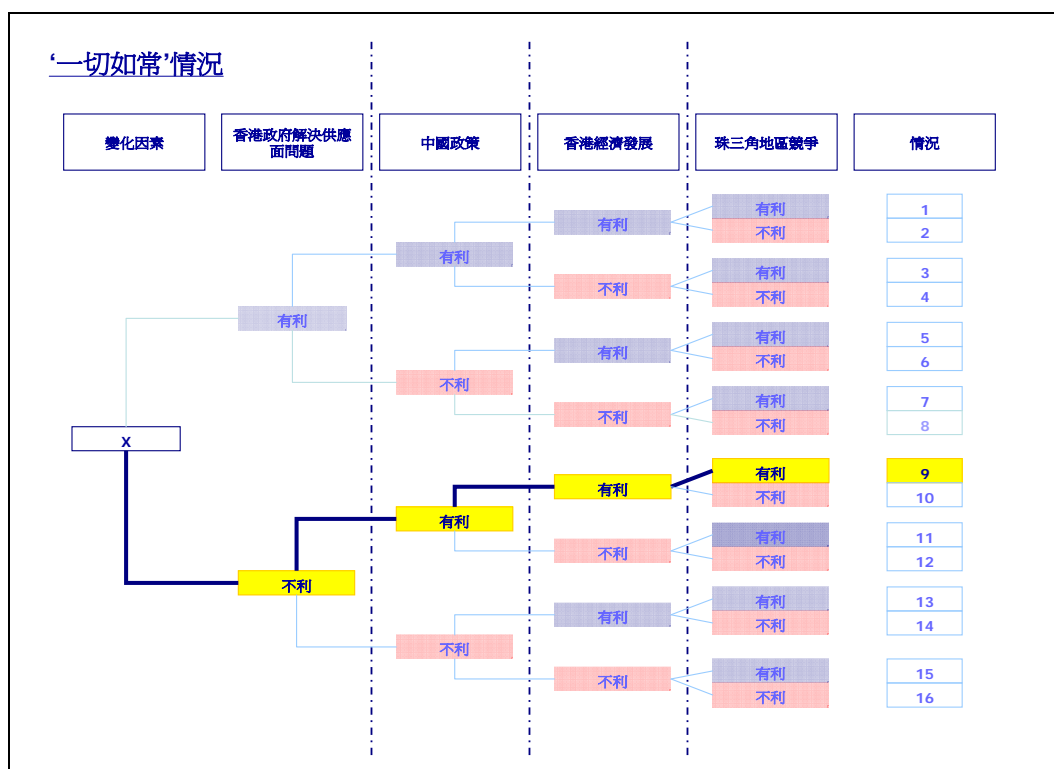
5. **我們認爲，香港面臨的最主要競爭來自珠三角，尤其是鄰近的廣州機場和深圳機場。**儘管中央政府反覆強調會繼續支持香港的航空樞紐地位，但仍然希望區內有一定的競爭。目前，香港機場的優勢在於可靠、效率、以及集中配套的各项運輸服務和技能，但在未來的 10 年，這些優勢很可能會逐步減低。
6. 預測中國對航空客運、貨運的需求非常強勁，尤其反映在中國計劃在未來 10 年增建 100 個新機場。**面對國內劇烈競爭，廣州白雲機場期望挑戰香港的國際航線轉乘中心地位的雄心將會因而有所限制。**當然，在策略上而言，我們不可視爲當然之事，畢竟白雲機場可擴容至五條跑道，其運輸能力遠勝於香港。
7. **兩岸直航對香港航空樞紐地位影響不大。**自從兩岸直航開通後，內地 33 個城市與台北、高雄開通直航，香港作爲大陸和台灣間重要的中間角色將逐漸減退，也造成了香港－台灣之間的航空客運和貨運量在短期內下降。但總體而言，**兩岸直航對香港航空樞紐地位影響不大**，主要基於三個原因。第一、開放兩岸直航是政治主導，因此，兩岸航空的開放進度將會是緩慢，這就給香港業界留下足夠的時間去調整。第二、直航帶來了大量的跨境旅遊，目前兩岸直航旅遊市場還沒有壟斷，香港有可能從中獲益。最後，香港也在開發新航線，比如印度和俄羅斯。這些新航線在中長期將更多的填補兩岸直航給香港航空運輸業帶來的影響。就未來的發展趨勢而言，台灣航空貨物業有發展潛力，但現時兩岸政策對台灣希望更多發展其航空貨物轉運樞紐的功能仍有一定的限制。但這些限制會否持續，仍需待進一步觀察。如果未來相關政策有所改變，將對香港的中轉樞紐地位產生重要影響。

8. **高鐵將對航空業帶來潛在、巨大的衝擊。**目前，大陸的交通部官員並不認為高鐵項目對航空市場造成衝擊。他們有可能是錯的，因為中國正在建設的機場將會導致機場運力產能過剩。面對高鐵對國內航空市場的衝擊，上海、廣州正在建設大型國際航空樞紐，這必然對香港作為地區性主要航空客貨運樞紐地位形成直接威脅。即使交通部官員的想法是正確，高鐵不會對航空市場造成衝擊，但毫無疑問，高鐵將大大改變大陸旅客使用航空運輸的習慣，造成一些樞紐機場的流量會降低，而一些則會增加。在這個情況下，大陸未來有可能出現更多的樞紐機場。香港的航空公司以及相關業界，需要迅速回應人們對航空需求的變化。
9. **香港航空市場不利於廉價航空樞紐的發展。**儘管過去幾年裡，廉價航空開始在香港開展業務，香港政府也出台了相應政策，但是香港市場並不適於廉航的發展。主要有 5 個原因：1) 亞洲航運市場分塊嚴重，因此廉航不能像在歐美市場那樣提供靈活的航線服務，限制了廉航的競爭力；2) 相對於傳統航空公司，廉航依賴於單一的客運收入，沒有貨運收入作為補充；3) 降落費的收費準則較有利於大型飛機；4) 不管是在香港或深圳營運的廉航，亞洲區廉航要取得長久的成功，內地航點的覆蓋網絡和靈活性處理增減航班班次以應付旅遊季節性需求是其中關鍵，但現時廉航覆蓋內地航點仍然有限，民航局對增減航班和班次亦欠缺彈性；5) 國泰、港龍的競爭實力強勁，廉航面對很大的競爭壓力。
10. 總之，儘管存在以上種種競爭和挑戰，在未來十年內，香港基於其航空樞紐地位，航空需求仍將獲得持續增長，香港尤其需要繼續維持其作為區域總部的地位，因為這是香港航空運輸流量的重要驅動器。
11. 本研究表明，**香港未來能否持續保持航空樞紐地位，最重要的因素是政府能否儘快擴建機場以滿足日益增長的需要。**政府不僅需要獲得公眾支持修建第三、四條跑道，還需要加強與深圳機場多樣化聯

通力度，以及與港珠澳大橋的連接，使香港機場可以延伸到珠三角西部城市。

12. 香港機場不能通過與鄰近機場（澳門、深圳）之間合作來彌補跑道容量不足的問題。由於倫敦地區五大機場的協調佈局和珠三角地區機場有不少相似的特點，我們特地研究了倫敦地區五大機場之間的協同關係，但沒有找到足夠依據支持倫敦地區五大機場能達到協同發展的成效。倫敦地區五大機場的經驗並未能充份支持珠三角地區機場間的協作的模式會帶來協同發展效應。在國際間，似乎仍未有一個機場間協同發展的例子。儘管如此，我們認為對機場間協同發展模式作進一步的國際比較研究是十分有意義的，亦為珠三角地區機場的協同模式找到依據參考。
13. 更為重要因素是香港政府需要**協同珠三角各主要機場**共同解決區內的空域管理問題。空域緊張是限制香港航空運力的一個關鍵問題，大大限制了香港機場的跑道使用效率。政府應儘快推行新的航空交通管理計算機系統。同樣重要的是，香港政府應與珠三角機場協作，共同訓練航空交通管理人員，及採取相關的補救方法去應對現時因國內和香港採用不同航空度量單位制度而帶來的問題。
14. **香港的未來發展很可能只可以朝著次優方案前進**。就目前情況來看，政府在爭取公眾支持擴建機場跑道問題上將遇到極大挑戰，因此，就香港航空業的未來不容樂觀。最有可能出現的情況是：市場總量需求將會增長很大；大陸政府一如既往的支持香港作為航空業樞紐中心的發展；儘管珠三角的兩大機場發展很快，但還不足以削弱香港的國際樞紐地位。但由於香港機場缺乏充足的跑道容量承接日益增長的市場需求，香港不得不把這些新增市場空間拱手讓與深圳和廣州。這就會增加這兩個機場的流量，增強他們的行業集群凝聚力，從而大大削弱香港目前的競爭優勢。由於香港的航空容量很可能最早在 2015 年出現飽和，香港的競爭優勢逐漸被侵蝕的情況有可能比預計更早、更快的發生。

香港航空業發展最有可能的情況



15. 我們認為‘一切如常’是最有可能在未來出現的情況。在這個情況下，香港政府未能及時建設第三條跑道，或者以緩慢地的速度去興建第三條跑道，使香港機場無力去迎合市場強勁需求；同時亦發現香港與深圳機場協同發展帶來有限的潛在發展增長。
16. 我們預計，儘管中央政府對保持香港航運中心的態度不變；廣州、深圳機場的服務水平也沒有明顯提高；香港仍然是亞洲總部經濟的主要集中地，經濟仍然保持一定增長；但由於香港機場未有及時興建新跑道，運力供給完全飽和，運力將會從 2015 年開始受到限制；因此，航空公司在無可選擇的情況下，可能要逐步把相當部分的航空服務轉移到鄰近的廣州、深圳機場，而這個趨勢可能在 2020 底更趨劇烈。
17. 這種情況類似於當年啓德機場的情形。當時機場跑道擁堵嚴重，香港機場管理局被迫偏重於載客運力大的寬體機應付強勁的客運需求，以使廉航和多以窄體機服務內地航點的航空公司只能以區內其他樞紐機場。類似的情況亦會在私人飛機業務上出現。貨運量也將

會受到影響，蓋因香港機場較難為小型貨機騰出位置。因此，在這情況下，香港機場實際上是把未來的航空業發展空間拱手相讓予廣州、深圳機場。這正如倫敦希斯路 (Heathrow) 機場正在面對的情況那樣，英國政府決定放棄為希斯路機場修建新跑道，倫敦希斯路機場無疑是將自身的發展空間‘贈送’予倫敦蓋特威克(Gatwick)機場的發展。

BACKGROUND

Recent developments have raised new concerns about the challenges facing Hong Kong as Asia's leading international aviation hub. These focus in particular on the rising challenge from airports in the Pearl River Delta (PRD), uncertainties arising from the establishment of direct air links between Taiwan and China's Mainland, and of course the implications for aviation of the severe global recession which engulfed Asia's export economy in 2008, at the same time hitting international tourism and business travel. Other factors demanding attention will include climate change and emissions (and the implications for aviation and the global supply chain), and the rapid evolution of China's transport infrastructure, in particular in the PRD (focusing on challenges from high speed rail, and on improving transport linkages between Hong Kong and its hinterland region).

Starting from a recognition that the strength and dynamism of Hong Kong's aviation hub has played a critically important role in aiding the development both of Hong Kong's economy, and of China's reengagement with the global economy in recent decades, there is an urgent need to ensure that Hong Kong's aviation economy continues to contribute as powerfully as possible to continued growth in the broader Hong Kong economy, and to China's ambition to build stronger global links.

Hong Kong's "best in class" track record

Despite the various challenges faced by Hong Kong over past decades, it has consistently surpassed competitors as the Asian region's leading aviation hub – both for international passengers and international cargo. Tokyo and Beijing handle more passengers in total, but many of these are domestic travellers (*see Tables 1 and 2*).

Table 1: Top 25 World Airports by Passenger in 2009

	Airport	Total Passengers
1	Atlanta Ga (ATL)	87,993,451
2	London (LHR)	66,037,578
3	Beijing (PEK)	65,329,851
4	Chicago IL (ORD)	64,397,891
5	Tokyo (HND)	61,903,656
6	Paris (CDG)	57,884,954
7	Los Angeles CA (LAX)	56,518,605
8	Dallas/Fort Worth TX (DFW)	56,030,457
9	Frankfurt (FRA)	50,932,840
10	Denver Co (DEN)	50,167,485
11	Madrid (MAD)	48,248,890
12	New York NY (JFK)	45,912,430
13	Hong Kong (HKG)	45,560,888
14	Amsterdam (AMS)	43,569,553
15	Dubai (DXB)	40,901,752
16	Bangkok (BKK)	40,500,269
17	Las Vegas NV (LAS)	40,460,310
18	Houston TX (IAH)	39,993,236
19	Phoenix AZ (PHX)	37,824,982
20	San Francisco Ca (SFO)	37,366,287
21	Singapore (SIN)	37,203,978
22	Guangzhou (CAN)	37,048,550
23	Jakarta (CGK)	36,466,823
24	Charlotte NC (CLT)	34,577,808
25	Miami FL (MIA)	33,886,025

Source: Airports Council International

Table 2: Top 10 World Airports by Cargo in 2009

Airport	Total Cargo (tonnes)
Memphis	3,697,185
Hong Kong	3,384,765
Shanghai Pudong	2,539,284
Incheon	2,313,001
Anchorage	1,990,061
Louisville	1,949,130
Dubai	1,927,520
Frankfurt	1,887,718
Tokyo	1,851,972
Paris	1,818,503

Source: Airports Council International

At the same time, the new Hong Kong International Airport (HKIA), opened in July 1998, has consistently ranked as one of the world's most highly-regarded airports. For example, it has been selected by Skytrax as the World's Best Airport for seven out of the last ten years. Travel Trade Gazette (TTG) has picked HKIA as the Best Airport for six of the past seven years. There are still numerous other awards that acknowledge Hong Kong airport's outstanding service standard. The airport's reputation for efficiency and reliability underpins this high regard (*see Table 3*).

Table 3: Air Services Assessment 2008

	Hong Kong	Beijing	Shanghai Pudong	Shanghai Hongqiao	Shenzhen	Chengdu
Ease to get to/from	4.6	3.4	1.4	3.7	3.2	4
Infrastructure	5	4	2.7	3.3	2.7	3.3
Airport Services	5	3.2	2.2	3	2.8	2.3
Flight delays	4.8	2.8	2.8	2.8	2.3	2.7

Scale: Favourable = 5; Unfavourable = 1

Source: China Economic Review

This leadership has been maintained in spite of the excellence of other regional hubs, in particular Singapore, and the rapid emergence (and increasing sophistication) of airports in the Pearl River Delta – in particular Guangzhou's Baiyun and Shenzhen's Baoan.

In spite of the progress made in Baoan and Baiyun, Hong Kong remains the region's dominant force both for passengers and cargo (*see Table 4 below, and Chart A and B*).

Table 4: Top 10 World Airports by International Passengers in 2009

Airport	International Passengers
London Heathrow	60,651,349
Paris	53,012,513
Hong Kong	44,984,571
Frankfurt	44,520,661
Amsterdam	43,519,833
Dubai	40,104,149
Singapore	36,088,996
Tokyo	30,894,531
Madrid	29,184,360
Bangkok	28,834,668

Note: International Passengers refer to traffic performed between the designated airport and an airport in another country/territory. The figure is to deduct Direct Transit Passengers and Domestic Passengers from Total Passengers. Hong Kong passenger traffic is international only, as Taiwan and Mainland traffic are not counted as domestic passenger traffic.

Source: Airports Council International

Chart A: Passenger Traffic in 2008

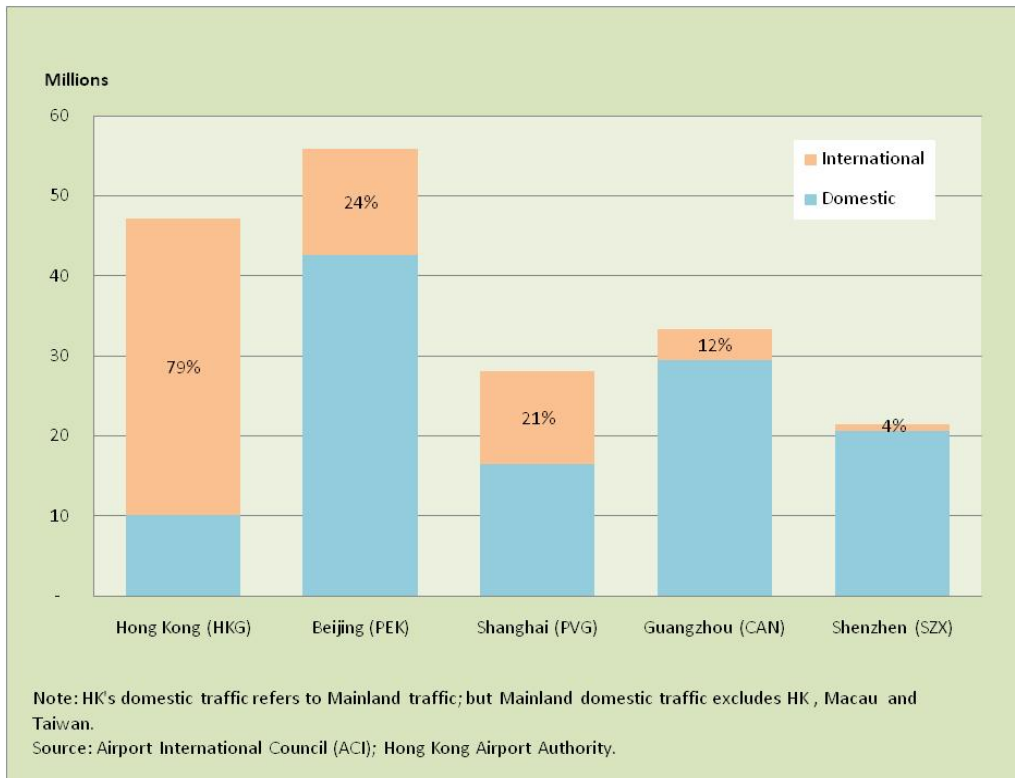
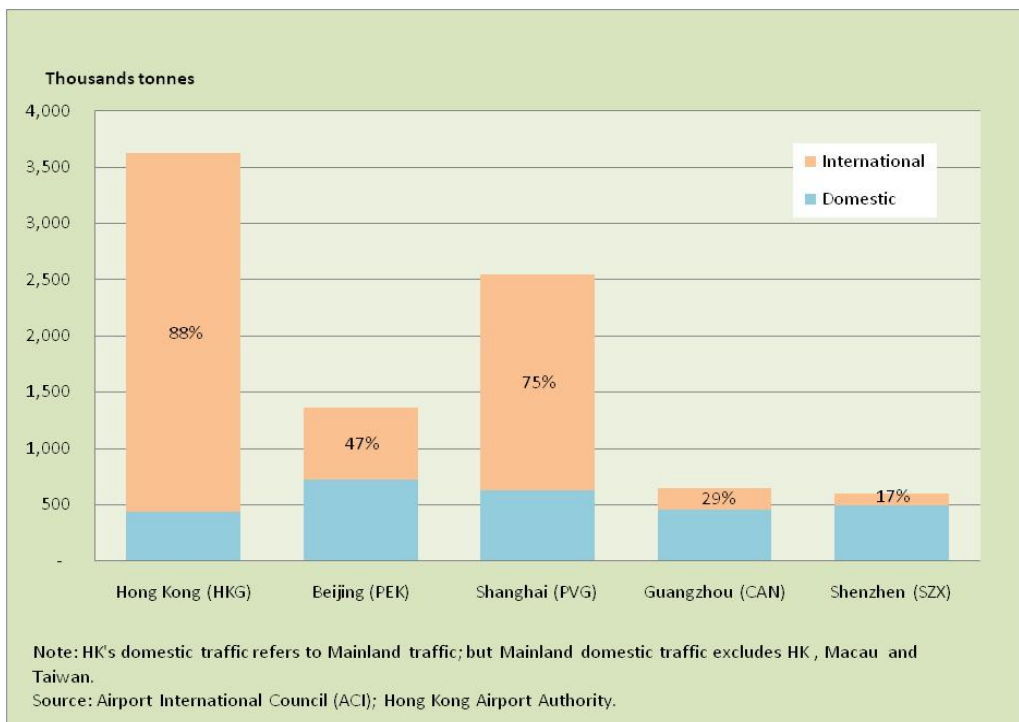


Chart B: Cargo Traffic in 2008



This high reputation is built on international connectivity and flight frequencies that other hubs have yet to match. (*see Table 5*). However, Baiyun’s ambitions, based on the potential eventually to build to five runways, has seen its international connectivity rise strongly, while Baoan already has significantly stronger connectivity than Hong Kong to cities across the Mainland.

Table 5: Comparison of International Passenger Connectivity

	Destinations	Countries Served	Weekly Flights	Destinations with Daily Flights
Hong Kong	74	37	1,676	43
Beijing	70	42	732	26
Shanghai Pudong	66	30	884	32
Guangzhou	31	21	577	30
Shenzhen	9	6	76	4
Macau	13	7	226	4

Note: Excluding flights between the Mainland, Hong Kong and Macau. The data is based on the schedules for the week of July 12-18, 2010.

Source: OAG.

Exceptional new challenges

Despite Hong Kong’s success in recent years to chart a competitive course that has kept it ahead of other aviation hubs in the region, a number of new and exceptional challenges have emerged over the recent past. To what extent will these challenges erode Hong Kong’s leadership, and what are the specific implications? In particular the study will focus on:

Recession and the structural challenge to export processing

The global financial crisis began to crystallize in the middle of 2007, deepening through 2008 with the collapses of Bear Stearns and Lehman Brothers, and extending into the real economy by the autumn of 2008. While Hong Kong’s financial markets have proven structurally resilient to the financial sector tsunami, its real economy was more severely impacted – in particular the trading economy. However, the picture since the beginning of 2010 has improved strongly, as importers in the US and Europe have rebuilt depleted inventories, as Government stimulus packages have buoyed economic activity, and as

intra-Asian trade and consumption has begun to rise. Data released recently by the Hong Kong Airport Authority (HKAA) reveal that passenger flows through HKIA fell by 5% to 46.14m between 2008 and 2009, but have rallied back to 20.3m by the end of May 2010, returning to the pre-crisis level in 2008. Due to the robust cargo performance in the last quarter of 2009, the fall in air cargo throughput returned to a single digit figure of 7.7% between 2008 and 2009, compared to a negative year-on-year growth of 19.7% in the first six months of 2009. Cargo flows have rebounded strongly through the first five months of 2010, recording robust growth of 36.4% since mid 2009, to reach record levels.

The 2007-2009 recession has been without question the most severe downturn experienced by HKIA since it opened 12 years ago. The recovery over the past year has buoyed Hong Kong's economy, reduced unemployment, and fuelled hopes that the improvement is sustainable in spite of still-severe economic challenges both in the US and Europe. The likelihood appears high of a reversal later in 2010 as US stimulus packages are exhausted, and as Europe's economies cut spending and raise taxes in attempts to stabilize their dangerously over-leveraged economies. How severe this reversal will be appears to depend heavily on the sustainability and effectiveness of Beijing's large stimulus efforts, and on the capacity of Asia's economies to reduce reliance on exports to the developed western economies and lift their own domestic consumption levels. Prospects thus remain uncertain for the powerful Pearl River Delta export processing economy that has driven Hong Kong's economy for the past three decades. If large structural trade imbalances are to be corrected, in particular between Asia and the United States, then this implies a structural decline in US consumer demand and of export processing as a driver for regional growth. Such a structural change has significant implications for Hong Kong's role as an export-focused air services and logistics hub.

PRD

Even absent the challenges arising from the global economic downturn, Hong Kong faces clear and intensifying challenges from the operations of increasingly substantial and sophisticated air services hubs in Guangzhou's Baiyun and Shenzhen's Baoan airports. If the PRD manufacturing economy is set to reduce its reliance on export processing activity, and instead captures more growth from increasing demand from within China's

domestic consumer economy, then it is possible that Hong Kong's long standing locational advantages will be eroded. The study examines these structural changes, and assesses the implications for the Hong Kong air services hub.

The challenge of Cross-Straits air services

From the beginning of September 2009, direct scheduled air passenger services between Taiwan and the Mainland were increased from 108 per week to 270 per week. From June 2010, it has been agreed that frequencies will be lifted to 420 a week. Taiwan airlines are haggling for still more frequencies before the end of 2010. By far the majority of these flights are based on Taoyuan Airport in Taipei. With 33 Mainland cities open for direct flights, just 29 are currently served, the great majority of services being focused on Shanghai, Hangzhou, Beijing, Guangzhou and Shenzhen.

At present, the impact of these direct services on Hong Kong's role as a stepping stone between Taiwan and Mainland destinations cannot be clearly quantified, in part because of the simultaneous negative impact of the 2009 collapse in global trade flows following the global economic collapse that began in the previous year, and in part because services are at too infant a stage to provide data that can in any reliable way reflect likely future trends. According to full year 2009 data from Hong Kong's Airport Authority, air passengers on HK-Taiwan flights fell by around 9.5% compared with 2008, with cargo volumes falling by 11%. By May 2010, data suggests HK-Taiwan traffic has stabilized, apparently returning to pre-crisis levels. HKAA revealed that Hong Kong had lost 7% of total passenger numbers to Cross-Straits direct flights, but that the shortfall had been offset by the rise in passenger traffic on other routes. It is not yet clear whether this fall will be sustained. Through 2009, it was not clear how much of the fall was due to the global export collapse rather than to the establishment of direct Cross-Straits flights per se. However, as international trade flows have recovered through the first half of 2010, it is fair to assume that the deepening of Cross-Straits air services must have accounted for the lion's share of the change over the past half year.

Meanwhile, a Bauhinia Foundation Research Centre study released in May 2009 on the implications of direct Cross-Straits air links, predicted that direct links will affect two thirds of the existing passenger flights between Hong Kong and Taiwan, and that Hong

Kong will lose 60% of its original air transshipment cargo business and 40% of import cargo business between Hong Kong and Taiwan.¹ However, the report suggested that the improvement of Cross-Straits relationship will benefit Hong Kong in the long term, because of rising overall volumes of passenger and cargo traffic between Taiwan and the Mainland, perhaps leading ultimately to a Cross-Straits economic zone that would provide an estimated \$64.3 billion stimulus to Hong Kong's economy.

In sum, it remains very early to reach firm conclusions about the likely impact of direct Cross-Straits air links on Hong Kong, but this study reaches tentative conclusions based on latest available data.

China's High Speed Rail developments

From an initial plan drawn up in 2004, China's leadership has driven hard the development of what may soon become the world's largest and most modern high speed railway network. Evidence from other economies – in particular Japan, the European Union and Taiwan – suggests that the introduction of high speed rail services is likely to have a dramatic negative impact on demand for air services between cities less than 800km apart. Despite the fact that China is only at the early stages of launching high speed rail services, this study aims to provide an initial assessment of how the development will affect airlines and airports both in the PRD in general, and in Hong Kong in particular.

Summary

In sum, this study will describe and assess present challenges facing the Hong Kong aviation hub, and evaluate what the implications are likely to be for the hub, how the changing external environment will effect Hong Kong's competitive position, and what this implies for the hub in the decade to 2020. Finally, it will review and evaluate present

¹ Bauhina Foundation Research Center (BFRC), *Hong Kong-Taiwan Economic Ties*, Hong Kong: BFRC, May 2009. (in Chinese language only)

Government policies towards aviation, how these might be altered going forward to enhance the hub's development and performance, and what future strategies might be adopted to both enhance the Hong Kong hub in its own right, and to optimize interactions across the Pearl River Delta.

Chapter 1

Recent Aviation Trends

1. RECENT AVIATION TRENDS

Even in the best of times, the aviation sector has been seen as perilously vulnerable to fickle economic forces. Oil price volatility – and in particular the stunning and unexpected rise in May 2008 to more than US\$130 per barrel – thrust many of the world’s airlines into the red. The crash in world markets following the demise of Lehman Brothers in 2008, which triggered the severest global recession for 80 years, inevitably convulsed the global aviation industry. The number of people travelling by air slumped sharply. The volumes of air cargo carried across the globe also crashed as trade slumped. However, by mid-2010, passenger and air cargo volumes had recovered to the peak levels being recorded in 2008 before the crash occurred. This may be partly attributable to massive stimulus initiatives by Governments around the world and to some inventory rebuilding, so it is open to question whether the recovery can be sustained as the US and European stimulus measures are unwound. In short, the sector remains in a fragile state globally. Asia’s airlines appear to have recovered on the back of more robust foundations, as China’s economy has continued to grow strongly, and as intra-Asian trade has surged to compensate for flagging intercontinental trade, but it is a brave analyst who suggests recession is behind us.

a) International trends

IATA’s latest report forecasts that the global aviation market will be likely to return to profits of around US\$2.5 billion in 2010.² Most depressed is the European region, and European airlines, with the US market very fragile, and airlines in Asia and Latin America seeing the greatest buoyancy. All regions are expected to record an improvement from the recession-induced performances of 2009, in which the aviation industry recorded an aggregate loss of US\$9.9 billion. As the global aviation market was badly hit by the financial crisis, Hong Kong also noted a drop in both air passenger and air cargo traffic. As shown in *Chart 1.A*, the drop in air passenger has been relatively mild – returning to the 2007 level – compared with many other global hubs, with the single clear exception of Dubai. While the decline in air cargo has been more notable except in Fedex’s Memphis hub (*see Chart 1.B*), Hong Kong’s market share has

² ‘Global Aviation Returns to Profitability - But Europe Still in the Red’, IATA Press Release, June 7, 2010, <http://www.iata.org/pressroom/pr/Pages/2010-06-07-01.aspx>

nevertheless remained well above other hubs, reflecting its currently strong competitiveness in the world air cargo market.

The only international hub of relevance to Hong Kong that has been able to “buck” the globally depressed trend may be Dubai and its home carrier Emirates, which has benefited from strong Government support, and the recent completion of a new six-runway airport. The clearest measure of this strong countercyclical financial support for growth through Dubai is backing for Emirates to extend its already-large order for the giant Airbus 380 to 90 aircraft. It is arguable that no purely commercial airline could in present market circumstances attract the bank funding necessary for such a colossal order. But on the back of strong Government support, Emirates has grown in the past two decades from 10 aircraft and around 20 routes to 138 aircraft today, serving over 100 destinations. From its base in the new 6-runway airport, its potential to build the Dubai hub is considerable – a development that capacity-constrained Hong Kong International Airport will need to take careful note of as it consults on the potential for a new runway capacity at Chek Lap Kok.

Forecasting global trends in the coming 5-10 years is of course abnormally challenging, but at this point in the recovery from global recession, it appears that consumer depression in Europe is likely to intensify competition on Asia-Europe routes. Competition may also intensify on routes across the Pacific if forecasts of slow US recovery prove correct. At the same time, however, the possible “rebalancing” of the global economy now in progress, driven by rising consumption in China in particular, may improve the economics of intercontinental services to and from Asia: freight services that have over the past decades flown full to Europe and the US, but returned with much lighter cargo loads, may hope for a rebalancing that would greatly improve yields.

Chart 1.A: Air Passengers, HK vs Key International Hubs, 2001-09

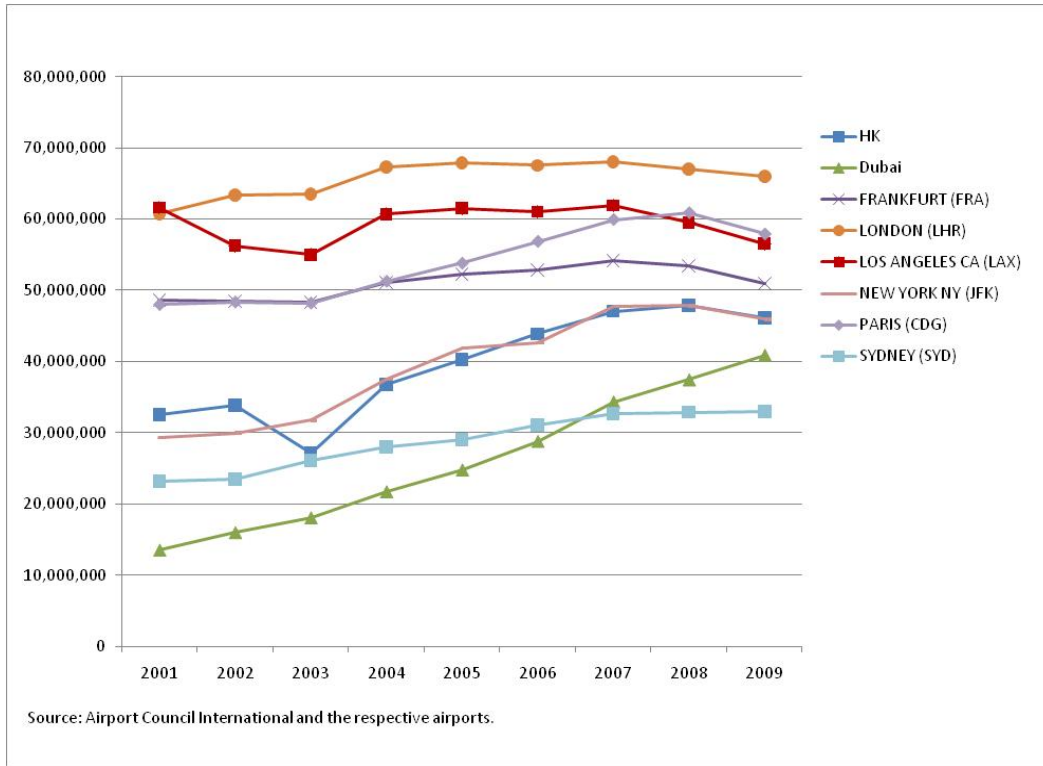
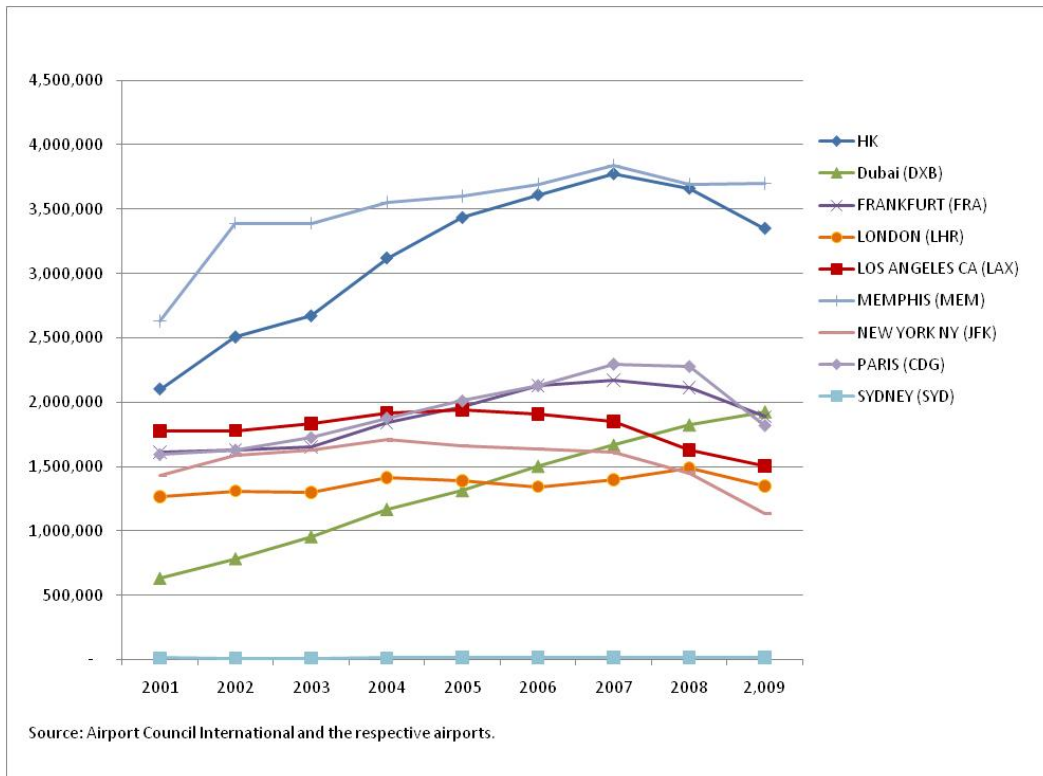


Chart 1.B: Air Cargo, HK vs Key International Hubs, 2001-09

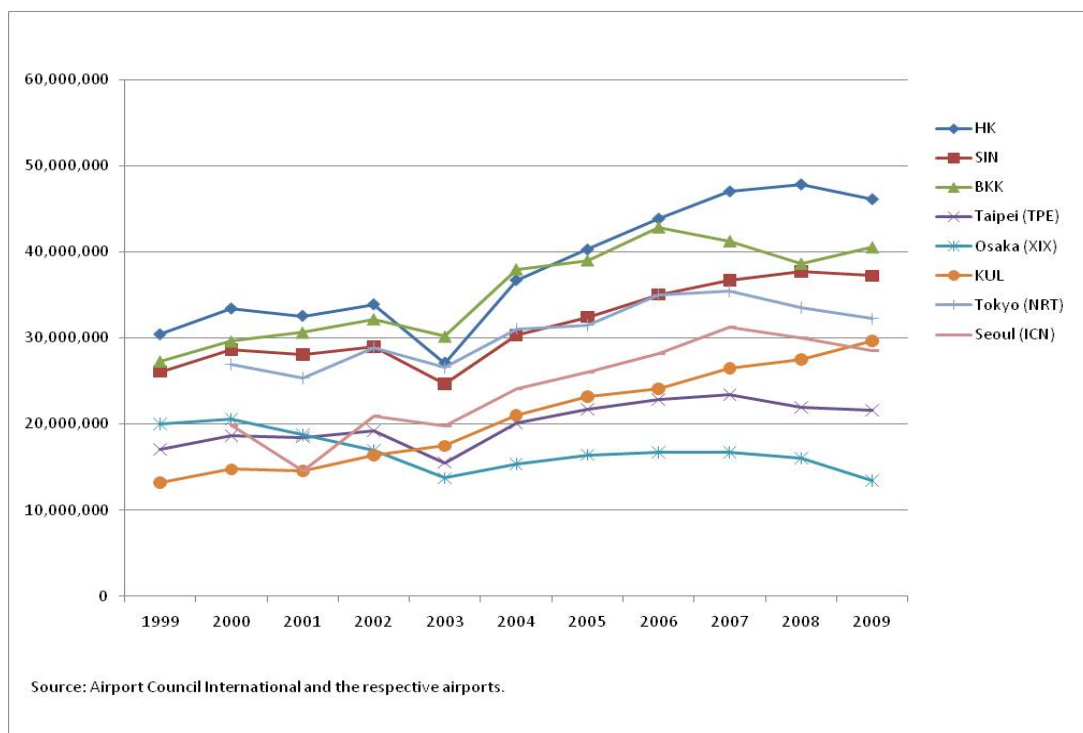


b) Regional trends

Looking at the Asia region, trends appear to be more promising than at a global level. Nearly all hubs tracked in *Chart 1.C* have experienced impressive growth since 2003. For instance, in spite of the financial crisis in 2008, Seoul and Singapore reported continuous growth in air passengers. Nevertheless, Hong Kong still tops the league in Asia (except China) by international air passengers.

On air cargo, Hong Kong is also the most important player in the region. As shown in *Chart 1.D*, all Asian hubs experienced notable drops in air cargo between 2008 and 2009, after some years of sluggish growth in air cargo (except Hong Kong). It is noteworthy that Seoul is rising quickly as an air cargo hub in the region.

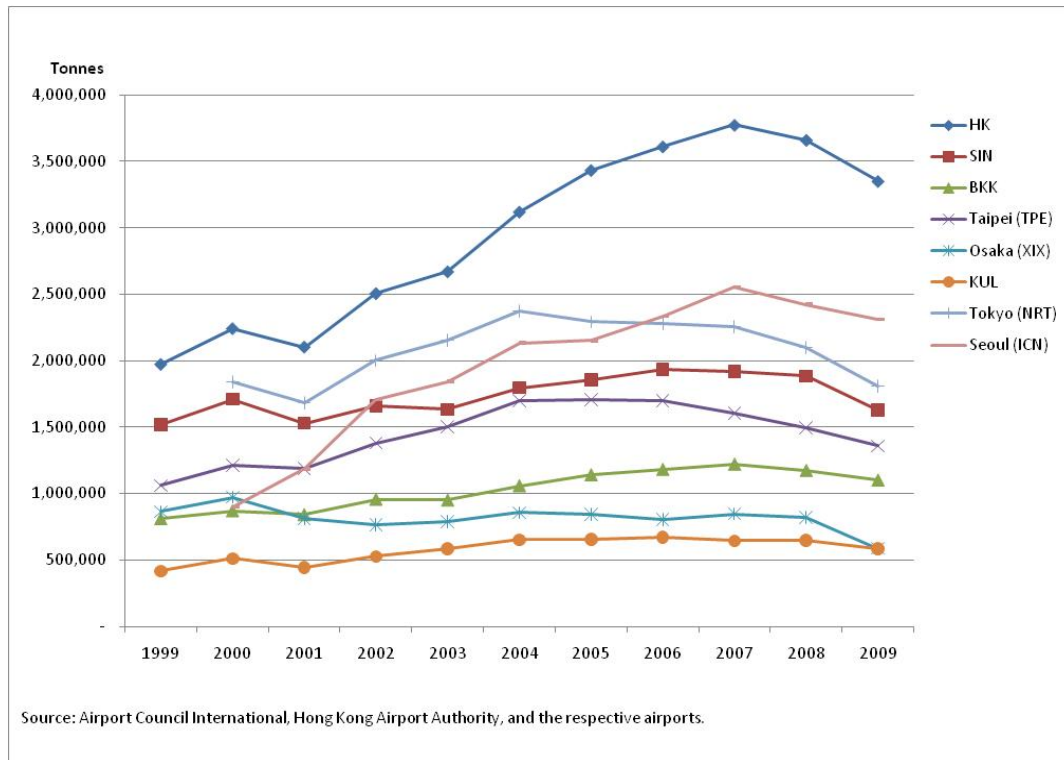
Chart 1.C: Air Passengers, HK vs Asian Hubs, 1999-2009



Most-recent passenger and air cargo data (in some cases up to the end of June 2010) suggests a strong recovery in the Asia-Pacific region, as rising consumption levels in China appear to have resulted in rising investor interest in the Mainland, and statistically significant jumps in intra-regional trade. If this is sustained, it suggests that Asia's

airlines may see greater buoyancy, and an earlier recovery, than airlines elsewhere, with increasing focus on services to and from cities in the Chinese Mainland.

Chart 1.D: Air Cargo, HK vs Asian Hubs, 1999-2009



c) Mainland trends

China’s aviation industry has experienced remarkable growth in the past 9 years.³ In spite of growth of just 1.9% in 2003 (during the SARS epidemic), and 3.7% during the 2008 global financial crisis, China’s aviation sector grew at an annual average of 15.08% between 2001 and 2009. However, the robust growth in total passenger volume is largely attributable to increase in domestic traffic. For instance, about 91% of total passengers travelled on domestic routes, with 6.3% and 2.2% on international routes and Hong Kong/Macau routes respectively in 2009. (*see Chart 1.E and 1.F.*)

³ The number charted in Figure 3 and 4 refers to the volume of air passenger and cargo transported by aviation. In and out airport traffic is not counted, therefore the number is often far lower than air traffic throughput data reported by airports. When comparing air traffic performance of airports, throughout data is often used. China’s air cargo data refers to both air freight and mail; but Hong Kong’s air cargo figure refers air freight only, air mail excluded.

For air cargo, volume grew at an annual average of around 10% between 2001 and 2009. Air cargo volume growth dropped from 15% in 2007 to 0.3% during the recession year of 2008, but the robust trend picked up again in 2009, at 10.5%, as China appears to have recovered from the global financial crisis faster than other economies.

Chart 1.E: Air Passenger Traffic, China, 1990-2009

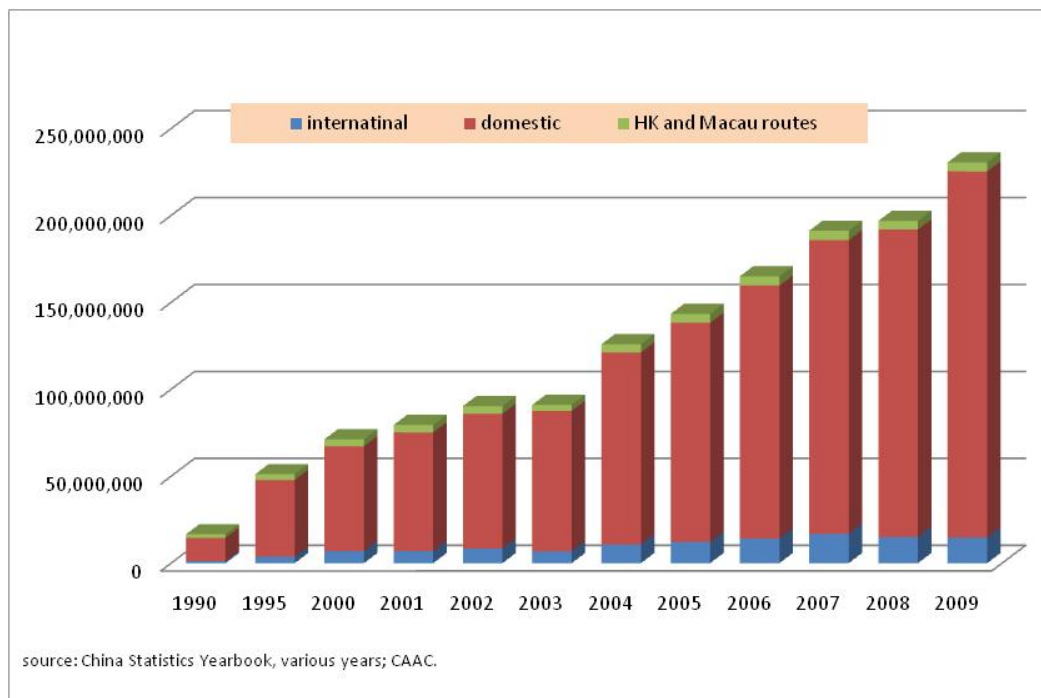
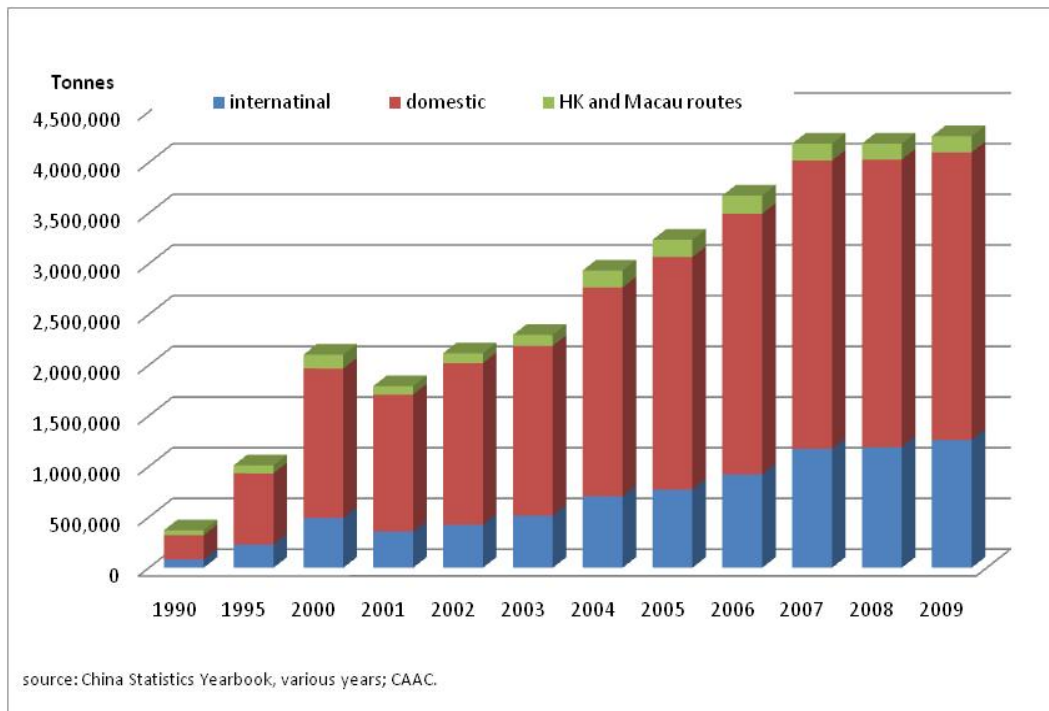


Chart 1.F: Air Cargo volume, 1990-2009



At present, Shanghai, Beijing and Guangzhou are no doubt the Mainland's key aviation hubs. The three hubs accounted for nearly one-third of China's total air passenger throughput in 2009, or around 160 million passengers/trips. Their combined share in air cargo is even more significant, standing at 57% or 5.4 million tonnes in 2009. Beijing and Shanghai (Pudong and Hongqiao combined) have already surpassed Hong Kong in air passenger traffic since 2005, while Guangzhou is catching up quickly. (*see Chart 1.G*) The Mainland hubs have all been buoyed by strong continuing growth in domestic air passenger demand, showing a steady positive trend that appears wholly unaffected by the global air traffic downturn. Since Hong Kong, heavily reliant on international passenger traffic, has been negatively affected by the global downturn, it has seen traffic fall back while traffic through Mainland hubs has continued to surge – resulting in a widening gap between Hong Kong and the two leading Mainland passenger hubs.

Given Hong Kong's strong position in air cargo, it still maintains a dominant position in the sector, although Shanghai appears to be catching up quickly. (*see Chart 1.H*) Pudong, the key airport in Shanghai for both air cargo and passengers, is about three-fourth of Hong Kong's total cargo throughput. For Beijing and Guangzhou, there is still a long way to go before they in any way challenge Hong Kong, or even Shanghai's position in

air cargo. For instance, Beijing’s air cargo traffic currently amounts to about 44% of Hong Kong’s, while Guangzhou is just 10%.

Chart 1.G: Air Passengers, HK vs Key Mainland hubs, 2000-09

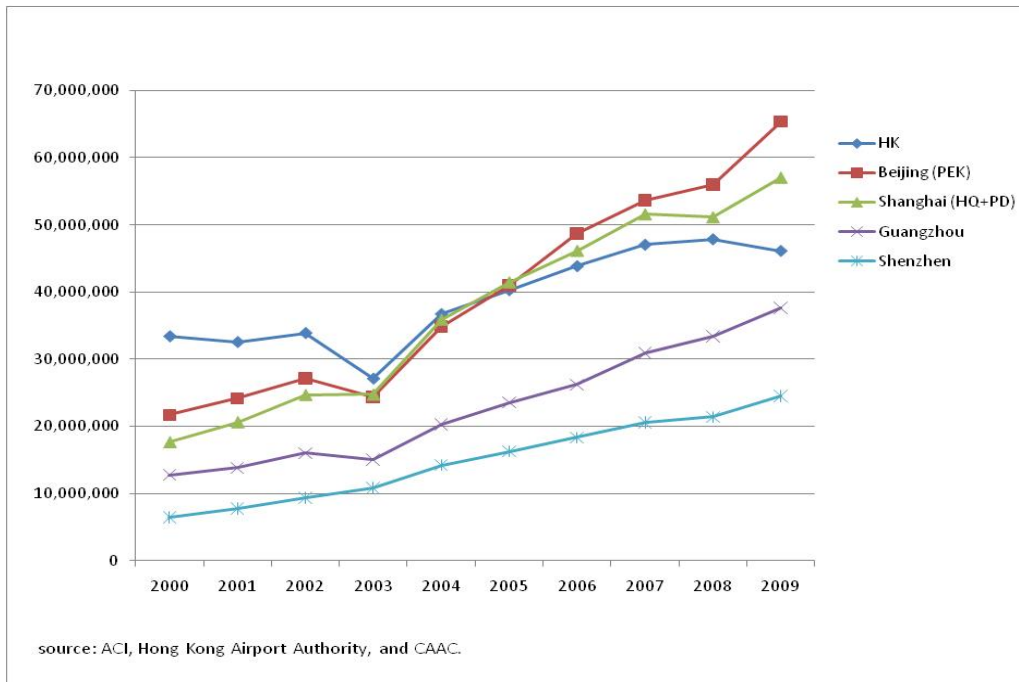
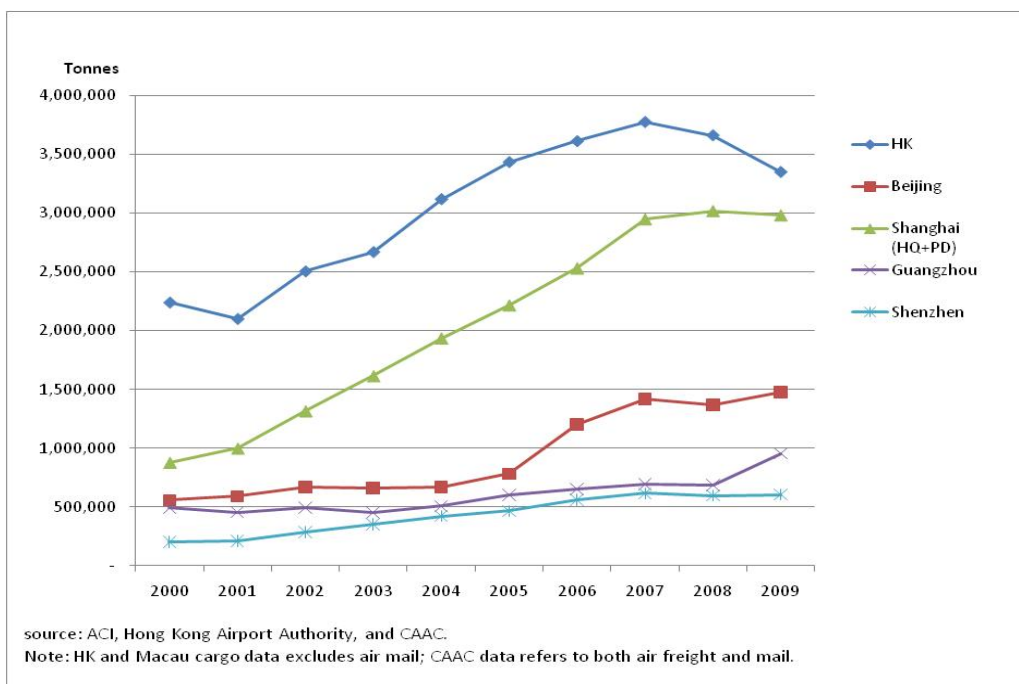


Chart 1.H: Air Cargo, HK vs Key Mainland Hubs, 2000-09



The potential for civil aviation in China to maintain strong growth is believed to be huge, reflected in Beijing planners' ambitious plans to build 150 airports by 2020 (*see Map 1.1*). Officials predict that air passenger traffic in the Mainland will grow at an average annual rate of 14.7% for the foreseeable future, lifting passenger totals from 230 million nationwide in 2009 to 1.5 billion by 2030. (*see Table 1.1*)

Map 1.1: Mainland Airports by 2020



Table 1.1: CAAC Projections 2009 to 2030

	2009	2015	2020	2030
Passenger totals (million)	230	420-460	660-700	1,500
Passenger flights per year	0.18	0.27	0.47	-
Airports	166	220	270	-

Note: passenger total refer to total passenger transported volume.

Source: Presentation at China Civil Aviation Development Forum, Beijing, May 12, 2010

Forecasts from officials at Beijing, Shanghai (Pudong and Hongqiao combined) and Guangzhou airports say their passenger volumes are likely to reach 76 million, 66 million, and 43 million by 2012 respectively and 130 million, 113 million, and 74 million by 2020. (*see Table 1.2*). However, the actual traffic in 2009 exceeded these expectations. In this context, Beijing’s national air transport planners appear to be confident that the impact of high speed railway on aviation may be high on certain specific routes, but is likely to be mild in aggregate terms, because the market for both is perceived to be big enough to allow rail and aviation sectors to enjoy ‘win-win’ benefits from their respective markets.

Table 1.2: Estimates of air passenger throughput by 2012, 2015 and 2019, Hong Kong and Mainland’s Top 15 Airports

(unit: millions)

Rank (2009)	Airport	2009 Passenger	Average Growth Rate 2005-2009	Passenger (Projected)		
				2012	2015	2020
1	Beijing Capital	65.4	13.5%	75.7	92.7	130.0
	Hong Kong	46.2	4.6%	53.4	65.4	91.7
2	Guangzhou	37.1	12.8%	42.9	52.5	73.7
3	Shanghai Pudong	32.0	8.9%	37.0	45.3	63.5
4	Shanghai Hongqiao	25.1	11.2%	29.1	35.6	50.0
5	Shenzhen	24.5	11.5%	28.4	34.7	48.7
6	Chengdu	22.7	14.9%	26.2	32.1	45.0
7	Kunming	19.0	14.4%	22.0	26.9	37.7
8	Xi’an	15.3	19.5%	17.7	21.7	30.4
9	Hangzhou	15.0	18.9%	17.3	21.2	29.7
10	Chongqing	14.1	22.1%	16.3	19.9	27.9
11	Xiamen	11.4	15.3%	13.2	16.1	22.5
12	Wuhan	11.3	21.6%	13.1	16.0	22.5
13	Changsha	11.3	24.9%	13.1	16.0	22.4
14	Nanjing	10.9	19%	12.6	15.4	21.6
15	Qingdao	96.6	15.1%	11.2	13.7	19.2

Note: 2012 projection based on an average annual growth rate of 5% between 2009-2012; 2015 and 2020 projection based on an average annual growth rate of 7% between 2013-2020.
Source: CAAC, Strategic Access’ estimates

Needless to say, viewing such steroidal growth projections for key Mainland hubs, there have been concerns voiced in Hong Kong over the competitive challenge to Hong Kong's currently-superior aviation hub role. Particularly, many in Hong Kong are anxious about the extent to which Shanghai will challenge Hong Kong's international air cargo hub status. Clearly, these hubs have their distinctive characteristics and can play different roles in the region. (*see Table 1.3*)

Table 1.3: Different roles of the different hubs

Characteristics	Hong Kong	Guangzhou	Shanghai	Beijing
Type of passenger	Business, finance, professionals, tourists	Business, government, tourists	Business, government, tourists	Diplomatic, tourist and general business
Origin/destination of passengers	Intercontinental and Asia regional	Domestic and south east Asia regional	Domestic and north east Asia regional	Domestic, Asia regional and intercontinental
Connectivity	Globally extensive; domestic limited to key cities	Domestically extensive, international mainly Asia regional	Domestically extensive, international mainly Asia regional	Globally extensive, domestically extensive
Frequencies	Globally intensive; domestic limited	Domestically intensive; international limited	Domestically intensive; international limited	Globally intensive; domestically intensive
Physical infrastructure	Space constrained, close to capacity	Space plentiful, capacity plentiful	Space moderate; runway capacity under pressure	Space plentiful; runway capacity under pressure
Cargo/passenger balance	Cargo a vital source of support to passenger services, with large volume of dedicated freighters	Passengers lead, cargo being built	Passengers-lead, cargo being built	Passengers lead
Type of cargo	General and specialised	General	General	General
Customs	Free port, minimal impact	Customs regime complex and pervasive	Customs regime complex and pervasive	Customs regime complex and pervasive
Costs	Nominally Expensive, but cheaper in terms of values for money, and simple and transparent charging regime	Complex charging regime compromises initial impression of low cost	Complex charging regime compromises initial impression of low cost	Complex charging regime compromises initial impression of low cost
Efficiency/productivity/reliability	World-beating on all three counts	Productivity rising from low base, efficiency and reliability improving	Productivity rising from low base, efficiency and reliability improving	Productivity rising from low base, efficiency and reliability improving

d) Conclusions

- After two dreadful years following the recession triggered by the global financial markets crash in 2008, Asia's aviation industry – Hong Kong included – has rallied more strongly than other regions – and more strongly than originally expected. This appears to be due to China's strong stimulus response, and a surge in intra-regional trade and economic activity as the consumer markets of Europe and the US have contracted.

- Whether this strong recovery can be sustained is as yet uncertain, in particular if consumer recessions in Europe and the US are protracted.
- Compared with other Asian regional hubs, Hong Kong's recovery has been surpassed only by Dubai, where strong government support for local airlines, and massive expansion of airport capacity have provided strong counter-cyclical stimulus.
- Mainland airports – in particular Beijing and Shanghai – appear to have been virtually unaffected by the global recession, buoyed by spectacular growth in domestic passenger demand. Both have now overtaken Hong Kong in passenger terms, and may do the same in air cargo within the coming decade, but their growth appears to be complementary to Hong Kong rather than a threat.
- Shenzhen and Guangzhou have both grown strongly as aviation hubs, but both still largely serve domestic demand. Both have plausible ambitions to challenge Hong Kong in international and air cargo services, but the centripetal strength of domestic demand appears likely to frustrate these ambitions.
- As an air cargo hub, Hong Kong at present retains its key role as an origin-destination hub for import-export activity linking the PRD economy with global markets, and as a transfer hub for Asia-origin cargos destined for Europe or the US. Data suggests that Korea has faded somewhat as a competitor, but strong growth through Dubai could constitute a long term challenge on European routes. Air cargo activity inside the Mainland remains ill-developed, and the modest recorded growth appears exclusively to serve import-export activity rather than needs within the domestic supply chain.
- A massive Mainland programme of airport building, along with the development of a large high speed rail system, is changing the patterns of domestic air transport, which will demand great vigilance from Hong Kong airlines and air services negotiators, and a carefully-tuned strategic response to opportunities arising at second and third tier hubs across the country.

Chapter 2
Challenges and Change Factors

2. CHALLENGES AND CHANGE FACTORS

a) Impact of global recession

In the months immediately following the onset of global recession in 2008, global aviation was hit severely, both in terms of passenger and cargo traffic. Coming after a period of severe disruption following the hike in oil and jet fuel prices in the second half of 2007, many airlines faced acute financial distress. Routes and frequencies were cut severely, with some airlines disposing of, or parking aircraft, and cutting staff costs.

Given the factors underpinning the recession, in particular leverage-facilitated hyper-consumption in key developed economies like the US, analysts of the recession forecast that recession would be protracted as leverage was unwound, projecting poor prospects for the aviation industry.

However, massive government stimulus packages intended to provide life support to economies – in particular those in the US and in China – have produced a rapid and unexpected rebound. Stimulus-supported Government consumption (in China mainly focused on massive infrastructure-building), and a decision by retailers to rebuild depleted inventories, gave particular impetus to air cargo activity in Asia. IATA reported a global rebound well above pre-recession levels, amounting to 7.2% and 28.9% growth in passenger and air cargo demand in the first five months of 2010, with Asian economies reporting even stronger recoveries.⁴ Between January and June 2010, China reported a jump of 17.6% and 38.6% in air passenger and cargo volume, while Hong Kong reported air passenger and cargo traffic growth of 9.5% and 35.1% respectively.⁵

The likelihood of this rebound being sustained is open to question. Western Governments, in particular the US and EU economies, have raised government indebtedness to levels never seen in peacetime, making it unlikely that stimulus initiatives can be sustained

⁴ 'Air Travel Rebounded in May - Above Pre-Recession Levels', IATA, June 29, 2010.
http://www.iata.org/pressroom/facts_figures/traffic_results/Pages/2010-06-29-01.aspx

⁵ '中国民航 2010 年 6 月份主要运输生产指标统计', CAAC, July 20, 2010,
http://www.caac.gov.cn/11/K3/201007/t20100720_33652.html; and 'Passenger and Cargo Figures Set New Records in First Half', HKAA, July 19, 2010,
http://www.hongkongairport.com/eng/media/press-releases/pr_1005.html

much longer. As property values continue to languish, so the capacity of private consumers to pick up the slack is limited. Indeed, many consumers in the western economies are beginning the painful process of reducing debt, with inevitably depressive effects on retail spending. As Governments begin to focus on strategies to bring debt back into control, so taxes are being raised, and Government spending is being cut in many European economies – lifting unemployment and lowering the disposable incomes of those still in work.

Taking such factors into account, the global aviation picture remains highly uncertain. However, in Asia, confidence about continued growth remains well-underpinned, in large part because of the scale and nature of China's stimulus activity. As China's domestic consumption has begun to rise, so the proportion of intra-Asian trade as a proportion of total trade has begun to rise. For example, China's exports to Europe and the US accounted in the first six months of this year for 38% of total exports – down from 45% in 2007, while the share of exports to Asia has been steadily rising – up to 47% of total exports in the first four months of 2010.⁶ Economies like Hong Kong, Taiwan and Singapore have also become steadily more dependent on sales within Asia: 71% of Taiwan's and Hong Kong's exports now stay in Asia, compared to around 65% three years ago, while Asia today accounts for about 73% of Singapore's exports – up from 70% in 2007.⁷ With it, intra-Asian aviation has been buoyed too – both in terms of passengers and in terms of air cargo. IATA data showed that in 2009, intra-Asia-Pacific travel eclipsed the number of travellers in North America as the world's largest aviation market, totalled at 647 million passenger journeys. IATA predicts that by 2013 an additional 217 million travellers are expected to take to the skies within the Asia-Pacific region.⁸

As a change factor for aviation in general, and for aviation in Hong Kong in particular, the global recession appears to have inflicted a deep two-year wound, but appears at this stage not to have altered long-term trend growth. Air cargo activity has by mid-2010

⁶ The Chinese trade data taken from the website of Ministry of Commerce, PRC. The latest available data of 2010 is up to April 2010.

⁷ Singapore trade data refers to first half of 2010. Taiwan trade data refers to the first five months of 2010.

⁸ 'Asia Pacific: Challenges and Opportunities - Intra-Asia Market Eclipses North America as World's Largest', IATA, February 1, 2010, <http://www.iata.org/pressroom/pr/Pages/2010-02-01-01.aspx>

recovered to pre-crisis 2007 levels. While the total of passengers had not by the end of June fully recovered to 2007 levels, profitability has been aided by more stable fuel prices, more efficient fleet operations, and improved yields. Since the recession hit the entire region reasonably evenly, so it has done little to alter the competitive position of Hong Kong as a hub, in spite of the rise in direct flights between China's main hubs – Beijing and Shanghai – and other airports in the region. For example, according to data from the Airports Council International (ACI) Hong Kong's share of all passenger journeys in the region has fallen by one percentage point between 2002 and 2009, from 4.96% to 3.79%. But Singapore's and Bangkok's shares have fallen by a similar amount – from 4.24% to 3.05% in the case of Singapore, and from 4.7% to 3.32% for Bangkok. For cargo, it is even clearer that diversion has not occurred. While Hong Kong's share of the total Asia-Pacific cargo activity has slipped by half a percentage point between 2002 and 2009 – from 12.63% to 12.75%, Singapore's share has slipped almost 2.5 percentage points, from 3.37% to 5.88%, and Bangkok slipping from 4.83% to 3.97%. It appears this erosion of market share is across the board, with growth through Beijing and Shanghai accounting for almost all of the countervailing gain. Interestingly, Shanghai and Beijing suffered less impact from the global recession, and their passenger and air cargo businesses have rallied more sharply, but these remain heavily pressed to accommodate fast-rising domestic demand, and so seem unlikely to challenge Hong Kong's competitive advantage in intercontinental and intra-regional connectivity any time soon. If anything, the recession may have aided Hong Kong's competitive advantage, in that many airlines and freight forwarders have responded to the downturn by consolidating operations, which has meant concentrating activity back into Hong Kong where they have greatest clustered strengths.

b) Implications of Direct Cross-Straits air services

For many years, analysts, consultants and miscellaneous commentators have speculated on how the eventual establishment of direct air services between Taiwan and Mainland cities would affect Hong Kong's air services hub role. At last, at the end of 2008, direct services were launched, both for passengers and cargo. Only in September 2009 did services begin on a substantial scale between Taipei and a significant number of Mainland cities. As a result, the question of how the establishment of direct links will affect Hong Kong will remain unclear until a more substantial body of data has been

accumulated. The challenge at this early stage of making confident predictions about the impact on Hong Kong is compounded by the uncertain state of the global economy. It is impossible at this point to distinguish in any downturn in passenger or air cargo movement between Hong Kong and Taiwan the reduction attributable to the economic downturn, as opposed to the reduction arising from the establishment of direct flights from Taiwan to Mainland cities.

Data available up to May 2010 shows a material downturn from 2008, but it may require a further year or more of data to differentiate contraction due to global economic recession on Hong Kong and Taiwan from contraction due to the establishment of direct links. Thus, the present study makes inevitably tentative conclusions.

The scale of “direct links”

Given the political nature of the “direct links” agreement, Beijing has been anxious to open only gradually. Since the first agreement on regular scheduled direct air services was signed in April 2009, Mainland and Taiwan governments have further extended direct air services in December 2009 and May and June 2010, by adding more destinations and increasing frequencies. (*see Appendix E, F, and G*)

Direct air services have been increased from a capped weekly menu of 270 passenger flights in each direction in April 2009 to 420 passenger flights in each direction as recently agreed in early June 2010. Direct passenger services now link six Taiwan cities with 33 Mainland cities. Compared with air passenger services, regular direct air cargo services remain much more limited (up to 48 flights per week in each direction, to four Mainland destinations –Shanghai, Guangzhou, Nanjing, Xiamen, Fuzhou and Chongqing). The committed additional frequencies and destinations take effect in June 2010 and thus the traffic data analysis below does not reflect the immediate impact of these newly added services.

Based on the latest available data, in May 2010, five Taiwan carriers are operating the direct air services, alongside nine Mainland carriers. Airlines on both sides have taken up 461 of these 540 service opportunities, with Shanghai accounting for about 20%, and Beijing, Hangzhou, Guangzhou, and Shenzhen together accounting for about 34%. Only

29 of the 31 designated Mainland cities are currently served with direct air services. These show direct air links remain heavily concentrated in a small number of key cities, leaving a number of less popular (mostly inland and second tier) Mainland cities thinly served.(see Map 2.1)

Map 2.1: Direct Cross-Straits air services in operation (as of May 2010)



The significance of the Taiwan market to Hong Kong

For Hong Kong, Taiwan is a key market for tourism, as well as transit passenger and cargo transshipment. For years, Hong Kong has been the most popular destination for Taiwanese, followed by Japan and Macau, accounting for a third of Taiwan’s outbound visitors every year.⁹ Taiwan is the second largest source of visitors to Hong Kong. In 2009, there were 2 million Taiwanese visitors, accounted for 6.8% of total overseas visitors to Hong Kong.¹⁰ Over half of these Taiwanese visitors came to Hong Kong by air. Similarly, Taiwan is also seen as an important tourist destination for most Hong Kong people. Hong Kong and Macau accounted for 16% of total visitors to Taiwan in 2008,

⁹ On average, 33.44% of the total number of Taiwanese outbound visitors went to Hong Kong every year between 2003 and 2008. Data taken from Tourism Board, Taiwan, available on <http://admin.taiwan.net.tw/indexc.asp>.
¹⁰ Data provided by Hong Kong Tourism Board.

ranking second amongst all tourist sources. Between 2005 and 2008, Hong Kong and Macau visitors to Taiwan increased by 43%. Vigorous tourism flows between Hong Kong and Taiwan have made Taiwan a key aviation market for the Hong Kong airport and airlines.

While the direct transport ban remained in place, Hong Kong and Macau served as important transit-hubs to facilitate flows of goods and people between the Mainland and Taiwan, a response to rapid growth of Taiwanese investment into the Mainland. Hong Kong also became the headquarter hub for the international operations of Taiwanese companies, in part because of complex domestic financial regulation, and in part because this avoided possible political sensitivity over Mainland-based manufacturing operations. According to HKIA data, between 2005 and 2009, the Taiwan market accounted for an average of 17.6% of total air passenger traffic of Hong Kong, equivalent to about 8 million passengers each year.¹¹ Hong Kong is also the top destination for Taiwan's international cargo traffic. There were 60 scheduled cargo flights per week from Taiwan to Hong Kong in 2008, accounting for about 18% of Taiwan's total international scheduled cargo flights in the year.¹²

The Challenge of direct air links: decline in HK-Taiwan air traffic

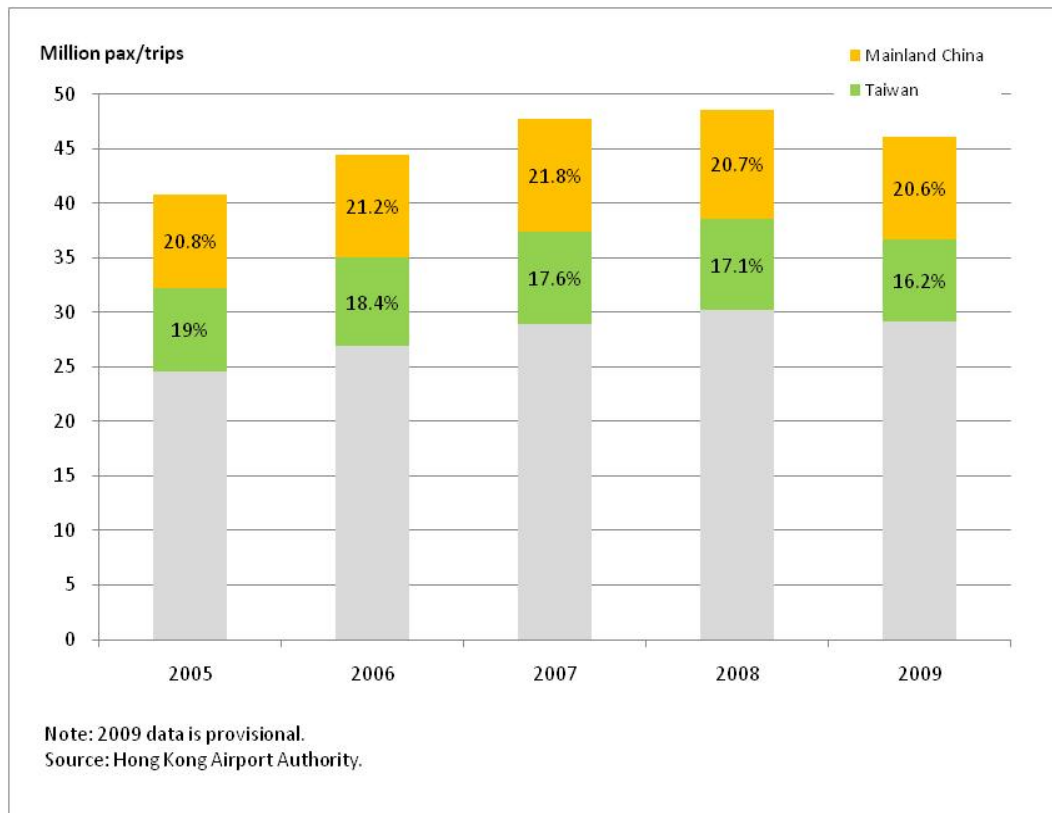
As Hong Kong's role as Taiwan's gateway to China is being challenged and noticeably diminished in the face of the warming Cross-Straits ties, the immediate impact of Cross-Straits direct links on Hong Kong was substantial. Passengers travelling between Hong Kong and Taiwan fell by about 810,000 between 2008 and 2009, from 8.29 million to around 7.5 million, while cargo traffic also fell by 50,000 tonnes in the same period, from 450,000 tonnes to 400,000 tonnes.¹³ (see *Chart 2.A*) How much of this was attributable to recession, and how much to the assumption of direct links in September 2009, remains unclear at this stage.

¹¹ In 2009, HK-Taiwan traffic accounted for 16.2% of total air passenger traffic. Data provided by HKAA. (accessed on March 25, 2010)

¹² The website of Civil Aeronautics Administration, Ministry of Transportation and Communications of People, Republic of China, <http://www.caa.gov.tw/big5/content/index01.asp?sno=1407> (accessed on February 10, 2010)

¹³ Data provided by HKAA. (accessed on March 25, 2010)

Chart 2.A: Share of Air Passengers to and from Taiwan and Mainland, HKIA, 2005-2009



The HKAA revealed that transfer/transit passengers dropped by 11% year-on-year in September 2009 due mainly to the declining traffic between the Mainland and Taiwan markets, and indicating the immediate impact of Cross-Straits direct links on Hong Kong.¹⁴ Similarly, transshipment of air cargo fell by around 15% year-on-year in September 2009. Considering that transfer and transit passengers and transshipment of cargo account for about 35% and 20% respectively of Hong Kong’s total air passenger and cargo traffic on the Taiwan-HK routes,¹⁵ the drop is significant and likely to be sustained. According to the Hong Kong Airport Authority, between 2008 and 2009, there was a loss of 1.8 million air passengers on the Hong Kong – Taiwan route.¹⁶ (*see Appendix H*)

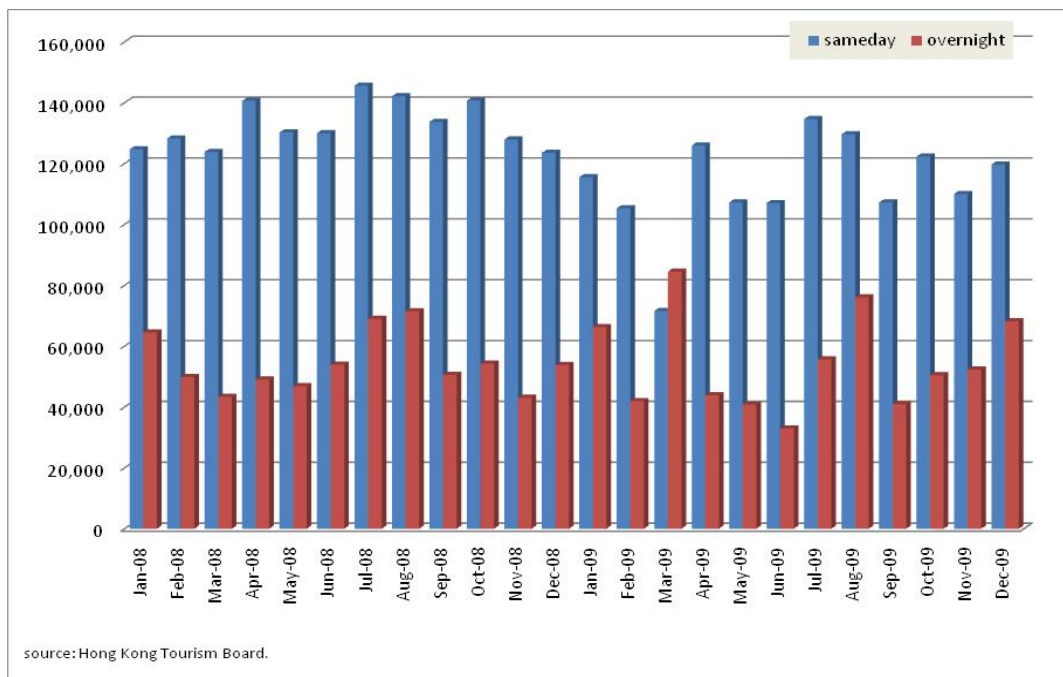
¹⁴ ‘Moderate Declines Reaffirm Stabilisation for Air Passenger, Cargo Volume’, Press Release, HKAA, October 18, 2009, http://www.hongkongairport.com/eng/media/press-releases/pr_973.html

¹⁵ Data indicated by HKAA (personal communication, December 29, 2009)

¹⁶ Interview with HKAA (February 24, 2009)

Hong Kong tourism data paints a similar picture. Between 2008 and 2009, same day Taiwanese visitors to Hong Kong dropped by 12% and overnight Taiwanese visitors fell by 5.5%. (*see Chart 2.B*) The two indicators are usually considered as proxy indicators of transfer passengers to other international destinations, with a large proportion to the Mainland, and holiday visitors to Hong Kong. In the three months between July and September, same day visitors from Taiwan fell by 20.3%, leading to an overall 22% drop of Taiwanese visitors in the same period in July-September 2009. The number of Mainland visitors to Hong Kong also dropped by 7.4%. Nevertheless, the tourism traffic appeared to have stabilized and even registered a mild increase in last quarter of 2009. This raises questions whether the downward trend in tourism traffic may be more attributed to the economic impact of the financial crisis, rather than the Cross-Straits direct links services which started in July. (*see Appendix I*)

Chart 2.B: Same Day and Overnight Visitors from Taiwan, 2008-09



Airlines expressed greatest concern over the decline of air cargo. For instance, for the Taiwan-Shanghai route, cargo transferring via Hong Kong fell from 40% to 20% of the total flow.¹⁷ Statistics from Hong Kong's leading air cargo handler, Hong Kong Cargo Terminals Limited (Hactl) which handles around 80% of air cargo handled in Hong Kong show that transshipment to/from Taiwan dropped by 32.5% between 2008 and 2009, and

¹⁷ Interview with Cathay Pacific. (December 17, 2009)

its share of the total transshipment of airfreight dropped from 10.6% in 2008 to 7.7% in 2009. (*see Table 2.1*) Although the overall decline of transshipment in 2009 is about 6.3%, over half (or 3.5%) was attributable to the loss of Taiwan transshipment. Load factors on the Cross-Straits direct cargo links remained below 70% in 2009,¹⁸ so there appears to be room for airlines to increase their cargo capacity.

Table 2.1: Cargo Throughput, Hactl, 2008-2010*

	Transshipment Tonnage from the destination (share of total)			Total cargo throughput Tonnage from the destination (share of total)		
	Taiwan	China	Total	Taiwan	China	Total
2008	51,761 (10.6%)	119,316 (24.4%)	488,458	172,070 (6.8%)	289,087 (11.4%)	2,528,295
2009	34,955 (7.7%)	102,759 (22.5%)	457,767	153,367 (6.6%)	249,630 (10.8%)	2,319,712
Jan – May 2010	15,044 (6.8%)	46,822 (21.25%)	220,289	75,712 (6.6%)	120,103 (10.5%)	1,140,733
Growth (year-on-year)						
2008 -2009	-32.5%	-13.9%	-6.3%	-10.9%	-13.7%	-8.3%
2009-2010	+19.2%	+23.4%	+24.7%	+42.1%	+34.9%	+40.1%

Note: 2010 data refers to January to May only.

Source: Hactl website.

Nevertheless, a rebound in air passengers and cargo traffic has been noted not only on the Hong Kong-Taiwan routes, but also in a robust uptick in other markets. The rebound in Hong Kong's air cargo business may suggest some easing sign for the loss in Taiwan transshipment linked to the direct air links. For example, Hactl registered 19.2% growth in the Taiwan transshipment market in the first five months of 2010. While it is too early to predict with any confidence the main factors behind this rebound, industry appears to be optimistic that the market has stabilized at the very least. Air passenger traffic and tourism data also show encouraging signs of a rebound for the Taiwan market. HKAA

¹⁸ The load factor figure is indeed improved from the over 58.5% of chartered cargo flight between December 25 2008 – March 29, 2009. 林祖嘉、譚瑾瑜, '2009年兩岸經貿政策回顧及2010年展望', National Policy Foundation Research Report, No. 098-043 (December 29, 2009). Available on <http://www.npf.org.tw/copy/6883>; and 'Cross-Straits Transport Statistics [兩岸海空運執行情形統計]', Mainland Affairs Council, Taiwan, <http://www.mac.gov.tw/lp.asp?ctNode=5724&CtUnit=4000&BaseDSD=7&mp=1>

recently said that Hong Kong had lost 7% of total passenger numbers to Cross-Straits direct flights, but that the shortfall had been offset by the rise in passenger traffic on other routes.¹⁹

Not a zero-sum game

The aviation industry in Hong Kong appears not to be pessimistic about long term impacts of direct Cross-Straits air services. Many do not see it as a zero-sum game, but rather, a change that will add substantially to travel within the Greater China region, benefiting all hubs – Hong Kong included. The reasons are simple. Closer Cross-Straits ties are politically driven and are likely to build slowly, limiting the danger of any “mass exodus”, and giving carriers time to adjust and develop new, compensating routes. Hong Kong air service operators have been clear for many years that Hong Kong cannot assume to monopolise a ‘middle-man’ role indefinitely, but remain confident that Hong Kong remains an attractive location to retain a share of the Taiwan tourism and business traveller markets while diversifying into other international markets.

The impact of Cross-Straits direct links on Hong Kong remains uncertain because of the very short time frame of relevant data to discern trends on traffic diversion and potential growth in the Mainland and Taiwan aviation market resulting from direct links. Yet, with available data, it is reasonable tentatively to identify certain broad-based outcomes:

- the slow pace of liberalization in direct link services for passenger and cargo is likely to limit the scale and pace of Hong Kong’s loss of Cross-Straits air traffic. The prospect of opening additional frequencies on profitable routes is constrained by capacity pressures at key hub airports. It has been made clear that the Shanghai, Beijing, Shenzhen and Guangzhou airports face considerable slot problems that limit their ability to accommodate more traffic stemming from Cross-Straits direct links.²⁰

¹⁹ ‘Airport Authority earmarks HK\$12b for expansion plan’, South China Morning Post, July 1, 2010.

²⁰ ‘大陸再出惠台民航舉措 [More Preferential Policy to Help Taiwan Airlines]’, Hong Kong Commercial Daily, March 8, 2010, Page A24.

- Politics continues to play a crucial role influencing the development of further expansion in direct air links, especially on air cargo. The allocation of air traffic rights, especially 5th freedoms and further opening up of air routes are likely to remain an agenda item on a Cross-Straits discussion that is likely to continue for many years to come. Prospects for Cross-Straits air cargo development are difficult to calculate at this point due to limitations in frequency and destination for direct air cargo and passenger links between the Mainland and Taiwan, not to mention other key issues such as slot problems, customs clearance in the Mainland, and Taiwan's lack of extensive international connectivity.
- Considering the air services arrangement between Hong Kong and the Mainland is far more liberalised than Taiwan, Hong Kong retains a clear role to play in serving the air passenger and cargo markets of Taiwan and the Mainland, both as destinations in their own right, and in terms of handling a meaningful share of transfer business.
- Hong Kong, in losing its “monopoly” market-dominant position in passenger and air cargo transfer activity will lose a substantial number of Mainland and Taiwan “transit passengers”, but the net loss appears likely to be modest and manageable because of expected growth in tourism and Hong Kong's competitiveness in the transfer market for regional and inter-continental connections – both for passengers and cargo. Already the Taiwan transit market appears to have stabilized since the last quarter of 2009.
- The growth potential for point-to-point Hong Kong–Taiwan tourism appears to remain favourable and is likely to contribute to net growth in Hong Kong-Taiwan traffic. As Hong Kong and Taiwan have agreed to establish economic representative offices at both sides, closer economic ties and visitor flows can be anticipated.
- Even the significant initial erosion of transfer traffic will be more than counterweighed by net growth in overall Mainland-Taiwan travel.
- The disagreement between Beijing and Taipei on double taxation, and other constraints for Taiwanese businesses on the international movement of capital, will leave Hong Kong in a significant advantage in terms of retaining headquarter hub

for international operations of Taiwanese companies. This role will of course be strengthened as direct air links may induce more Taiwanese businesses to launch operations on the Mainland, and vice versa.

- The loss of the monopoly grip on the Cross-Straits market has prompted Hong Kong carriers to step up exploration of new markets to compensate for the loss in traffic. HKAA and the Hong Kong authorities are keen to facilitate new routes and air services in new markets such as India and Russia, and to “city centre” airports like Haneda in Tokyo and Hongqiao in Shanghai. Robust overall tourism growth (the Hong Kong Tourism Board forecasts 5.2% increase in overall visitors to Hong Kong in 2010 compared with only 0.28% in 2009)²¹ are also likely to sustain air traffic demand for Hong Kong, probably outweighing any Cross-Straits diversion by a substantial amount.

c) The Challenge of China’s High speed railways for PRD aviation

Context

China has over the last six years undertaken a massive investment programme to upgrade existing railway lines, and plans to construct a total of 18,000km of High Speed Railway (HSR) lines by 2020, on which trains will be able to travel between 200 and 350 km per hour. This massive programme, which has seen new capital investment in railways rise more than fivefold from RMB 154 billion in 2006, to RMB 823.5 billion in 2010, will give China the world’s largest and most modern high speed railway network, transforming patterns of domestic travel.

As services have begun to operate (between Beijing and Tianjin, and Guangzhou and Wuhan, for example) they have been enthusiastically received – except perhaps in China’s aviation sector, where the impact on many domestic air services is likely to be severe, even if at this early stage it cannot be quantified.

This chapter first briefly quantifies the scale of the HSR plan, then tentatively assesses how the HSR network is likely to affect aviation, both in Hong Kong, and in other key

²¹ Data provided by Hong Kong Tourism Board.

PRD airports. Insights will be drawn, where appropriate, from experience in Japan (where the Shinkansen has been operating since 1964), Europe (where France's Train de Grand Vitesse (TGV) began operating in 1981, and Taiwan.

Overview of HSR Plans

China's HSR plans, first elaborated in a National Development Plan completed in 2004 and then revised and augmented in 2008, comprise two complementary networks – the National, and the Regional inter-city network. The national high speed network (NHSR) comprises four vertical (generally north-south) lines, and four horizontal (east-west) lines, with trains travelling at speeds between 200km and 350km per hour. The regional high speed network (RHSR) focuses on three major metropolitan regions – the Yangtze River Delta, the Pearl River Delta, and the Bohai region.

Map. 2.2: China's High Speed Rail Network by 2020



The NHSR is estimated to cover 13,000 km by 2020, dwarfing Japan's 2,500 km network, Europe's 4,400km network, and of course Taiwan's 335 km line from Taipei to Kaohsiung. If the regional high speed network is added, China is expected to have 18,000 km of high speed line, and plans on paper to build up the total national rail network to 120,000 km by 2020. (see *Map 2.2 and Appendix J*) To meet with rapid economic development of China's economy, railway officials and industry experts anticipated the major high speed rail lines on the 'four vertical and four horizontal lines' would be basically completed by 2015.

As of end June 2010, four high speed lines running on 350km per hour are in operation, namely Beijing-Tianjin (August 2008), Wuhan-Guangzhou (December 2009), Zhengzhou-Xi'an (February 2010), and Shanghai-Nanjing (July 2010). Together they

cover 6,920 km of high speed rail.²² Currently, there are 10,000 km of high speed railway line under construction. Media recently reported that these high speed rail lines would be completed and put into operation by 2012, while the national rail network plan would be completed by 2015, well ahead the original schedule of 2020. But capital investment in the rail construction work is expected to amount to around RMB 3 trillion between now and 2015.²³ Of the total of 13,000 km of high speed rail, 8,000 km is expected to be able to enable speeds of 300-350 km per hour, while the remaining 5,000 km will enable speeds of 200-250 km per hour.²⁴

Potential impact on aviation, and insights from overseas

Studies in Europe and Japan that have examined the impact of HSR services on aviation concur that impact is greatest on point-to-point journeys of between 300km and 1,000 km. Moshe Govini of the University College London wrote in a 2006 study: “In general, on routes of around 300 km, evidence shows that the introduction of HST services almost leads to the withdrawal of aircraft services, while on routes of around 1,000 km and above, the HST ceases to be a good substitute for the aircraft.”²⁵ As examples of short routes now not served by air, he points to the Nagoya-Tokyo route in Japan, and the Paris-Brussels route in Europe. By contrast, high speed trains have captured just 10% of Japan’s 1,070 km Tokyo-Fukuoka route.

Govini also notes that before the introduction of HSR, airlines accounted for 31% of the 425 km journeys between Paris and Lyon in France, and 40% of 536 km journeys between Madrid and Seville in Spain. After HSR services commenced, airlines’ share of the Paris-Lyon route fell by about 80% to 7% of all travellers, while on the Madrid-Seville route, their share fell by around 70% to 13% of all travellers.

²² ‘沪宁城际高铁运营 长三角一体化开启新引擎’, Xinhuanet, July 2, 2010, http://news.xinhuanet.com/fortune/2010-07/02/c_12288197.htm

²³ ‘市場圍繞“結構調整” 關注高鐵主題投資’, *China Securities News*, June 21, 2010. Available at http://big5.ce.cn/gate/big5/finance.ce.cn/rolling/201006/21/t20100621_15862132.shtml

²⁴ ‘美媒：中國高鐵里程占世界一半’, *China Review News*, March 16, 2010, <http://www.chinareviewnews.com/doc/1012/6/0/6/101260679.html?coluid=7&kindid=0&docid=101260679>

²⁵ *Development and Impact of the Modern High Speed Train*, Jan 2006, University College London.

In fascinating – and perhaps indicative – airline response to the introduction of HSR in Europe, Lufthansa has now dropped all flights from Frankfurt to Stuttgart and Cologne, instead offering passengers rail tickets to these destinations. Similarly, Air France uses the HSR link for all passengers wanting to travel between Charles De Gaulle airport in Paris and Brussels – and this lead has been emulated by Emirates, American Airlines and United Airlines.

As an interesting exception to this pattern, he notes that between London and Paris, 70% of travellers now use the HSR, but that there are still 60 flights per day between London airports and Charles de Gaulle.

Closer to home, Taiwan's aviation analysts predicted that the introduction of high speed rail services on the 340 km journey from Taipei to Kaohsiung would cut 50% of the air services between the two cities. Instead, a combination of city-centre convenience and low-price ticketing for the HSR has literally decimated air services. Airlines carry 15% of the passengers today that they used to carry before the introduction of HSR, creating a crisis for Taiwan's small domestic carriers. Many hoped that this crisis would be resolved following the establishment in September last year of direct air services between Taiwan and the Mainland.

In the Mainland, the threat of high speed rail services has also drawn concern from airlines and transport planners. While railway and aviation officials are confident that the market is big enough to allow 'win-win' growth of rail and aviation, the immediate impacts of high speed rail on diverting aviation traffic should not be underestimated. In November 2009, the Sichuan Airlines suspended the Chongqing to Sichuan golden route after 19 years of service after high speed services were introduced, shortening the journey to less than 2 hours. All air services between Zhengzhou and Xi'an were also suspended in March 2010, 48 days after the Zhengzhou to Xi'an high speed rail line started operation.²⁶ Flight frequencies running between Wuhan and Guangzhou have been reduced from 15 to only 9 per day and airfares have been cut to as low as RMB280 to RMB470 per trip to compete with high speed rail.²⁷

²⁶ '高鐵衝擊國內航空業西安至郊州航班全部停運', *Private Economy News*, March 27, 2010, page 11.

²⁷ '武廣高鐵公交化 10 分鐘 1 班', *Hong Kong Economic Times*, July 2, 2010, page A19.

In short, HSR appears to be very bad news indeed for airlines serving point to point city routes of between 300 km and 1,000 km. But what are the main factors behind passenger preference for HSR? Studies show that a number of factors stand out:

- HSR train tickets are normally significantly cheaper than air tickets, based on trains consuming about one-sixth of the energy needed by planes, kilometre for kilometre.
- Many rail stations are located in city centres, making the journey to and from the station significantly quicker, cheaper and easier than journeys to out-of-town airports.
- Embarkation and disembarkation processes are simpler, quicker and less stressful than on aircraft.
- Train journeys are more reliable, in particular during seasons of inclement weather.
- Modern HSR trains are perceived to be more comfortable than aircraft, offering more space, full tables and opportunity to move freely around a carriage.

Factors in airlines' favour appear to be:

- Long journeys are still more easily travelled by air.
- Complex journeys – starting or ending perhaps in small cities well away from major city hubs directly served by HSR train services – are perceived to be easier by air, in particular since air services may still run to and from such second-tier cities.
- If either the airport is “downtown” (e.g. London City Airport, or Haneda in Tokyo, or Songshan in Taipei) or the HSR rail hub is out of town or in an area where population is dispersed rather than densely concentrated (Shibi outside Guangzhou, Wuhan HSR station, and many other planned HSR stations in the Mainland which are being located as part of plans to create or upgrade new urban centres), then the HSR advantages may not be so strong.

Lessons for Hong Kong and the PRD

- Flights to cities within a four hour HSR travel-time radius of Hong Kong and other PRD airports can expect substantial attrition, at least to those cities directly served from Hong Kong, Shenzhen or Shibi.
- However, the fact that Shibi is a new out-of-town station may reduce the extent of attrition.
- As long as air services continue to be regularly disrupted because of air space management challenges in the PRD, then HSR services will be attractive because of their comparative reliability.
- China's railway planners appear not to have adopted a low ticket price strategy for their HSR services. On the contrary, HSR tickets appear to be priced at a premium to tickets on regular (slower) trains, and on a par with (or in some instances more expensive than) air tickets. This may reduce the negative impact of HSR services as they are introduced between now and 2015.
- The HSR challenge is essentially a challenge for domestic city-to-city services, and thus likely to have greater negative impact on Guangzhou Baiyun and Shenzhen Baoan than on Hong Kong, since the two Mainland airports depend more heavily on domestic air services.
- As Hong Kong develops its already-strong role as a transit hub for travellers between the Mainland and regional or intercontinental destinations, so it is likely to experience less impact from HSR services.
- However, the competitive challenge from HSR on domestic services may pressure Mainland carriers to give priority to building international hubbing activity, bringing Baoan and Baiyun into more direct competition with Hong Kong in the future.
- Easy connectivity between an HSR railway station and an airport is likely to have a strong impact on the competitiveness of an airport. Although Guangzhou is designated as the HSR network hub in Guangdong, connecting six lines in the NHR system, there is no direct link between Baiyun airport and Guangzhou's high speed railway station at Shibi. Baoan Airport in Shenzhen offers superior rail-air connectivity. It is thus likely that Baiyun airport will draw little benefit

from the HSR service, and may even suffer losses to the HSR as passengers find it inconvenient to transfer between the two.

- Air-rail combinations now being offered by Lufthansa in Frankfurt, and Air France in Paris, suggest that similar synergies might in due course be possible in the PRD, in particular if a high speed rail link is created between Hong Kong International Airport and Shenzhen Baoan Airport.
- Even though Hong Kong is a terminus rather than a hub in the high speed railway network, the rail connection between the HSR station at west Kowloon and the HKIA is moderately convenient. The potential exists for Hong Kong to attract a significant flow of Mainland travellers who prefer to travel from south China via HSR to Hong Kong, and then transfer in Hong Kong for onward international travel. This potential for multi-modal leverage has yet to be explored, and could obviously only take effect when HSR services commence around 2015.

Chapter 3

Hong Kong and Its Competitors

3. HONG KONG AND ITS COMPETITORS

This chapter will examine the nature of the competitive relationship between Hong Kong's aviation hub, and those of keenest neighbours – in particular in the Pearl River Delta. In an attempt to explore the potential for synergistic development among the PRD's five key airports, the chapter compares the nature and extent of synergistic developments among the five airports serving the London region. Finally, the chapter compares China's leading aviation hubs – including Beijing and Shanghai – and explores the extent to which these hubs constitute competitors, and how their development might influence that of the Hong Kong hub.

a) Developments among PRD airports

The five major PRD airports - Hong Kong International Airport (HKIA), Guangzhou Baiyun International Airport (GZIA), Shenzhen Baoan International Airport (SZIA), Zhuhai Sanzao International Airport (ZHIA), Macau International Airport (MIA) - are located within a 200 km circle in the Greater Pearl River Delta (hereafter 'PRD') region.²⁸

Map 3.1: The Five key airports in PRD



Source: HKAA

²⁸ PRD refers to the 9 cities in Guangdong Province, namely Guangzhou, Shenzhen, Zhuhai, Dongguan, Zhongshan, Foshan, Huizhou, Jiangmen and Zhaoqing, while the Greater PRD refers to the aforementioned PRD cities in the mainland and Macau and Hong Kong.

It is clear that the HKIA is a leader in the PRD region by many measures. The past success of HKIA is in large part due to the city's unique political status, economic development and geographical location. As the PRD has become more integrated in terms of the flows of people, goods, and business opportunities, and has become more confident and accomplished in managing relationships with businesses in international markets, it has become more important to explore the nature of competition between the airports, and the potential for collaboration, in particular as Hong Kong faces increasingly severe supply-side constraints in the coming decade.

Air Passengers

In 2009, the five PRD airports handled 114 million passengers, with Hong Kong accounting for just over 40% of this, followed by the Guangzhou airport, accounting for 33%. Macau and Zhuhai airports make up just 5% of the total.

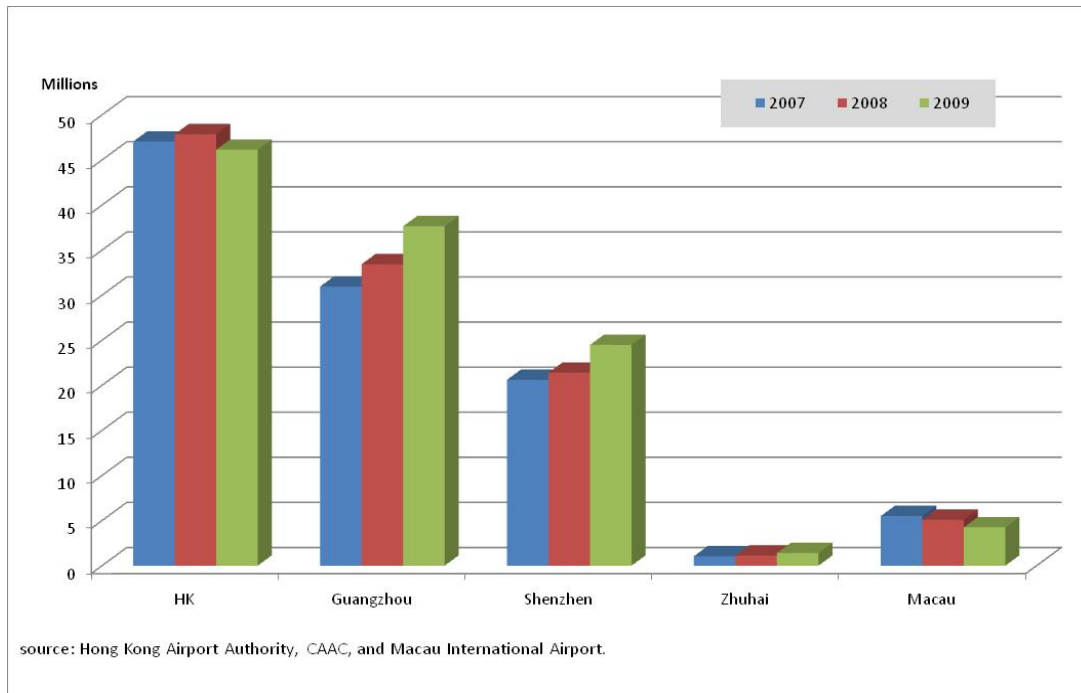
While the PRD airports have seen steady growth, largely unaffected by the 2008-09 hiccups when global trade collapsed, Hong Kong and Macau airports have seen sharp reversals linked to the global setback. Hong Kong appears to have recovered lost ground according to most recent passenger and cargo data, but Macau airport is still suffering a sharp reversal, from 5.5 million in 2007 to 4.3 million in 2009, in large part impacted by the establishment of Cross-Straits direct air links. According to Macau's aviation authority, Taiwan was in 2007 Macau's most important market, accounting for over 50% of total air passengers. The large majority of these were transiting to the Mainland.²⁹ The Taiwan market has shrunk from 46% of Macau's traffic in 2007 to 39% in 2009, while transit passengers tumbled from 40% in 2007 and 13% in 2009. This has forced a dramatic strategic rethink in Macau, with a new focus on other Asian markets such as Malaysia, Indonesia, Vietnam and Thailand, to compensate the loss of air traffic to Cross-Straits direct links. The strategy has shown some early benefits as the share of international passengers were doubled from 6% in 2003 to 13% in 2009.

By contrast, the three Mainland PRD airports – Guangzhou, Shenzhen and Zhuhai – have experienced notable growth in the past three years, comparatively unaffected by the fall

²⁹ Data provided by Macau Civil Aviation Authority.

in international aviation, and instead buoyed by strong growth inside China of air passenger travel. (see *Chart 3.A*)

Chart 3.A: Air Passengers, PRD Airports, 2007-2009



A similar trend is also noted in terms of the respective airports' aircraft movements during the period. *Table 3.1* shows that, although overall aircraft movements increased by 4.6% between 2007 and 2009, growth was much stronger in the Guangzhou and Shenzhen airports, up by 18.5% and 11.7% respectively.

While data on aircraft movements is not a perfect measure of passenger trends (since it also includes movements of dedicated cargo aircraft, and does not distinguish aircraft size or load factors) it nevertheless reaffirms the clear trend of growing importance of the Mainland PRD airports.

Table 3.1: Aircraft movements of the PRD airports, 2005-2009

Airport	2005	2006	2007	2008	2009
HKIA	263,506	280,387	295,342	301,142	279,000
MIA	45,004	51,049	53,386	49,764	40,601
GZIA	211,309	232,404	260,828	280,392	308,863
SZIA	151,430	169,493	181,450	187,942	202,627
ZHIA	22,742	24,352	25,405	30,430	23,149
Total	693,991	757,685	816,411	849,670	854,240

Source: HKIA, MIA, and CAAC.

As of end 2009, GZIA provided routes connected to over 160 destinations, including 54 international routes and 9 regional routes³⁰, and had more than 800 flights taking off and landing every day.³¹ In 2009, GZIA provided services for 37.6 million passengers and nearly 1 million tonnes of cargo with 308,000 aircraft movements.³² The Airport has grown rapidly over the past 6 years, rising from the world's 70th busiest airport to the 20th in 2009 in the terms of passenger throughput. It is estimated that the passenger throughput will reach 45 million in 2010, with some impetus coming from Guangzhou hosting the Asian Games.³³

Compared with the GZIA, SZIA focuses almost entirely on China's domestic aviation market, and has become one of China's major regional airports, after 18 years of development. As of end 2009, of the 150 air services routes, 113 were domestic routes, with only 33 serving international destinations.³⁴ In 2009, Shenzhen ranked 5th and 4th among all Mainland airports in terms of air passengers and air cargo throughput respectively.

³⁰ According to CAAC, regional routes refer to air service routes to Hong Kong, Macau and Taiwan.

³¹ Guangzhou Baiyun International Airport, *Annual Report of Guangzhou Baiyun International Airport 2009*. Available at www.baiyunairport.com

³² Data taken from CAAC.

³³ People's Daily website. (www.People.cn)

³⁴ Shenzhen Airport (Group) Co Ltd, *Annual Report of Shenzhen Airport (Group) Co. Ltd 2009*. Available at www.szairport.com.

ZHIA is considered the late-comer in terms of aviation development, far behind other airports in the region. In October 2006, the HKAA took over the management of Zhuhai airport and since then air passenger traffic has doubled, from a tiny base of 657,117 in 2005 to 1.4 million in 2009. Out of the 166 Mainland airports, it ranks 45th.³⁵

Air Cargo business

The five PRD airports handled nearly 5 million tonnes of cargo in 2009, with Hong Kong accounting for about 67% of the total. However, shown in **Table 3.2**, Hong Kong's share appears to have been gradually diminishing over the past 5 years. As estimated, given the dominant position of Hong Kong as an air cargo hub in the world, there is still a long way for other PRD airports to catch up.

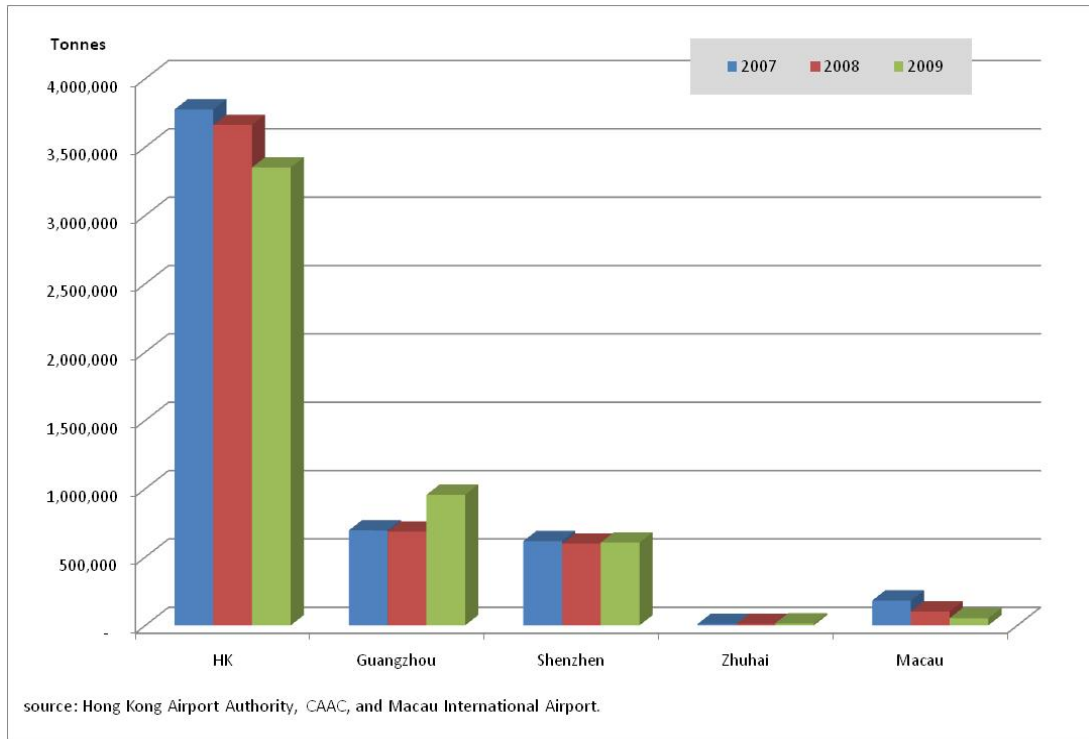
Table 3.2: Market share of Greater PRD Airports in Air Cargo, 2005 vs 2009

Airports	2005	2009
HKIA	72.5%	67.3%
MIA	4.8%	1.1%
GZIA	12.7%	19.2%
SZIA	9.9%	12.2%
ZHIA	0.2%	0.3%
Total volume (million tonnes)	4.74	4.98

Source: calculated with cargo throughout data of HKIA, MIA, and CAAC.

³⁵ Since October 1, 2006, the Zhuhai airport is managed by a joint venture between the Hong Kong Airport Authority and the State-owned Assets Supervision and Administration Commission of Zhuhai Municipal People's Government. The management of the joint venture is basically drawn on the management team of Hong Kong Airport Authority.

Chart 3.B: Air Cargos, PRD Airports, 2007-09



Amongst the five airports, only Guangzhou managed to register positive growth in air cargo traffic between 2007 and 2009. This is likely related to Fedex’s new distribution centre set up at the airport in early 2009, and the continuous growth of PRD market. Like other air cargo hubs in the world, Hong Kong’s air cargo business fell sharply following the global financial crisis. It was not until the fourth quarter of 2009 that air cargo traffic began to show signs of positive growth. (*see Chart 3.B*)

The superiority of HKIA as the leader in the PRD in air cargo business is partly due to its efficiency in transshipment and in its customs clearance system. **Table 3.3** shows that the time for customs clearance and loading is only six hours in HKIA, whereas it takes 12 hours in GZIA. For cargo transit, HKIA takes only 20 hours, whereas in GZIA and SZIA transit takes 48 hours and 75 hours, respectively.

Table 3.3: Comparison of Efficiency on Freight

Airports	Customs clearance and loading	Transit Hours
HKIA	6 hrs	20 hrs
GZIA	12 hrs	48 hrs
SZIA	-	75 hrs

Source: Source: GHK (2006) and Singapore Kent Ridge Consulting

Given that HK is a free port, HKIA adopts a clearance system that just requires submitting a report to the government office after transshipment. Such a system streamlines the required procedures and is easy for airlines and airfreight forwarders to transit their goods overseas. In contrast, the mainland airports use a pre-clearance system, which involves customs inspecting goods before package - thus requiring that goods be transported to the airport and consolidated in the airport warehouse. In addition, before shipment, carriers are required to provide a series of documents, such as coding number, tax rebate form, packing list, invoices, certificates, etc, which may delay transit by 1 to 3 days³⁶. The importance of China's Customs regime nationally makes it unlikely that PRD airports will see any change in this policy in the short-term, suggesting that HKIA will maintain its leading position in the cargo market in the PRD for at least the next 5 or 10 years.

MIA's air cargo business is nearly negligible due to the small handling volume, indicating its business focus on the air passenger front. Like its air passenger business, Taiwan is the major air cargo market, accounting for 50-60% of the total air cargo volume. Data shows the loss of Taiwan and Mainland air cargo traffic, from a peak of 113,838 tonnes and 63,342 tonnes in 2004 to 34,706 tonnes and 9,735 in 2009, has led to the significant drop of total air cargo traffic of Macau.³⁷

Physical Infrastructure

Table 3.4 shows the current physical infrastructure and capacity constraints of the five PRD airports. Considering the current level of air traffic in the respective airports, it is

³⁶ Interview with Jade Cargo Airlines (Jan 15,2010)

³⁷ Data provided by Macau Civil Aviation Authority.

clear that Hong Kong, Shenzhen and Guangzhou airports will reach their own maximum capacity levels in the near future, given that vigorous demand growth is anticipated as a result of China's continued economic development. Indeed, the passenger traffic of SZIA in 2009 already reached 24.48 million, exceeding its design capacity. The Chinese government has indicated support for expansion of the Shenzhen and Guangzhou airports. The development plans will be discussed in the next section.

Table 3.4: Airport Facilities and Capacity of the Greater PRD Airports

Airport	Runway	Stands	Terminal	Terminal Area (thousand m ²)	Designed (or ultimate) capacity		Aircraft movements per hour (peak hr)
					Passengers (million)	Cargo (million tonnes)	
GZIA	2	68(F), 38(R)	1	320	35	1	48
SZIA	1	24(F), 70(R)	2	147	17.5	0.8	42
HKIA	2	59(F), 38(R)	2	710	87	9	57
MIA	1	24	1	45	6	0.16	11.7
ZHIA	1	17(F), 9 (R)	1	91.6	12	0.6	23

Notes: F stands for frontal stands, R stands for remote stands

Source: Websites of HKIA, The department of airport management in Shenzhen, GAMC; SZIA data taken from the interview with Mr. Wang Suichu on Jan 14, 2010; expansion plan of Shenzhen airport, Page 1; Guangfa Securities Ltd., 2009; the basic information of Shenzhen airport, Page 2; GZIA data taken from the interview with GAMC on Jan 26, 2010 and Wikipedia. MIA data taken from MIA website and the interview with Macau Civil Aviation Authority on June 2, 2010.

Destinations

A hub's air services network and flight frequencies are crucial factors for selecting which airport to use, whether as passengers or for cargo. Amongst the five Greater PRD airports, the Hong Kong airport provides an extensive international air network with flexible flight schedules for air passengers, which enables passengers to transfer quickly between flights.

As shown in **Table 3.5**, GZIA serves 110 destinations, of which only 31 are international destinations. SZIA serves 73 destinations, but only 9 are international destinations. In addition, GZIA and SZIA's international destinations are concentrated in Asia, with few

destinations in Europe and the United States. MIA only serves Asian countries with no connections to Europe or North America.

In contrast, HKIA is currently served by 65 airlines which offer flights to around 113 destinations worldwide, including 39 Mainland cities.³⁸ The number of HKIA's international destinations currently served amount to 2.4 times of GZIA's, and more than 8 times of SZIA's, indicating the dominant position of HKIA in serving international air services. This dominance is reinforced by greater flight frequencies to each international destination, which when combined with its broad international network facilitates fast passenger transit. Nevertheless, GZIA may pose challenges to HKIA in international services if Hong Kong's growth is constrained by limited runway capacity, and if it manages to fulfil its ambitious plans to add new runways and open more international air routes in the next five years, i.e. from 54 international routes in 2009 to over 120 by 2015.

Table 3.5: Airlines and Air Services Network in Operation of HKIA, GZIA and SZIA

	HKIA	GZIA	SZIA	MIA
Airlines	65	40	19	13
Destinations	113	110	73	22
• International	74	31	9	13
• Domestic (or Mainland)	39	79	64	9

Note: Data refers to destinations in operation for air passenger services in the sample period of July 12-18, 2010. Air services between Macau and Hong Kong and the Mainland is considered as domestic (or Mainland) services.

Source: OAG.

Market Positioning

The current state of the air services networks appears to reflect their respective market positioning in air services. Based on its efficient and intensive flight arrangements and high-level air service, HKIA has been successful in capturing international visitors who enter the Mainland via Hong Kong, high-end Mainland tourists, and business passengers from the PRD and overseas. These groups of passengers tend to give high priority to high

³⁸ This does not include all cargo services.

level services, and dense flight schedules that ensure convenient interconnectivity and minimise transit time. At present, data suggests that high-end tourists and business passengers who want to access to PRD and Hong Kong see HKIA as their first choice.

Airline fees and charges

Although landing fees at HKIA are nominally higher, Hong Kong's fee structure is simple and clear. In contrast, in the Mainland, the landing fee is not high, but other charges are numerous and complicated, with the result that total charges are reported to be higher than HKIA. (*see Table 3.6*)

Table 3.6: Cost Structure of Airports

	Mainland airports	HKIA
Currency	CNY	HKD
Exchange Rate (Feb 2009)	1.1345	1
Landing charge	19,520	25,835
Parking charge (4 hrs turnaround)	2,928	2,496
Facilities charges (variable)	800	0
Pax charge	20,090	6,601
Terminal navigation per flight	18,170	0
Total	61,508	34,932

Source: Cathay Pacific.

However, the Guangzhou government currently provides a financial subsidy for international cargo routes. Home carriers can obtain up to RMB10 million in subsidies per year and non-home carriers can obtain up to 8 million. The policy covers airlines such as Federal Express, Air France, Lufthansa Airlines, Saudi Arabian Airlines, Korean Air, Asia Airlines, and Japan Airlines.³⁹ This policy will of course reduce overall costs for cargo carriers and clearly improves the attractiveness of GZIA for as long as the subsidies are maintained.

³⁹ Singapore Kent Ridge Consulting, 2009.

Long term development plans

The vision of coordinated development and further integration of airports in the PRD has been highlighted in the *Outline of the Plan for the Reform and Development of the Pearl River Delta (2008-2020)*.⁴⁰ However, the extent and scope of potential integration is rather vague in language and no consolidated plan has emerged among the PRD airports so far.

In early 2008, CAAC issued a document, “*The main principles to strengthen the whole aviation network in China*”, to categorize all mainland airports into several levels by their importance in the national aviation network. Guangzhou airport, alongside Beijing and Shanghai airports, is assigned to the first level as a “national multi-function gateway”, while Shenzhen airport is positioned as a “secondary-regional hub”. The designated positions of Guangzhou and Shenzhen have set the direction for their own airport development plans, especially for the 12th Five year period that begins in 2011.

To facilitate long-term growth, GZIA and SIZ are undertaking a grand program to expand facilities (*see Table 3.7*). In September 2009 GZIA completed two corridors (East 3 and West 3) to increase the airport's capacity to 45 million passengers a year.⁴¹ Many projects and construction works are underway to meet the targets set in their expansion plan.

The goal of GZIA is to be able by 2015 to handle 75 million passengers and 2.17 million tonnes of cargo a year, and by 2020 to handle 80 million passengers and 4 million tonnes of cargo, with the airport having five runways, three terminals and three logistics parks.⁴² SZIA targets to expand its capacity to handle 45 million passengers and 2.4 million tonnes of cargo volume by 2020, with the airport operating 4 terminals and 3 runways.⁴³

⁴⁰ NDRC (2008), *The Outline of the Plan for the Reform and Development of the Pearl River Delta (2008-2020)*[《珠江三角洲地區改革發展規劃綱要(2008-2020年)》]. December 2008.

⁴¹ Interview with Guangzhou Airport Authority. (Jan 26,2010)

⁴² Data provided by Cathy Pacific.

⁴³ Interview with Shenzhen Airport Authority. (Jan 14,2010)

Table 3.7: The Expansion plan of Guangzhou and Shenzhen airports

	2011	2012	2015	2020
GZIA	-	3rd runway	<ul style="list-style-type: none"> • 2nd Terminal • High speed rail services linking airport to cities 	<ul style="list-style-type: none"> • 5 runways • 3 terminals
SZIA	2nd Runway	3 rd Terminal with 62(F) and 28(R)	-	<ul style="list-style-type: none"> • 4th Terminal with 36(F), 38(R) • 3rd runway

Notes: F stands for frontal stands, R stands for remote stands

Source: Interviews with and materials provided by GZIA and SIA; Cathy Pacific, 2009; Guangfa Securities Ltd.

The details of development plans for Zhuhai remain unavailable, but Zhuhai Aviation Industrial Park, a core development project around the Zhuhai airport, recently revealed investment plans to expand “aviation supporting services” projects with an annual industrial value of RMB1.8 billion.⁴⁴ The projects include developing core manufacturing skills for aviation equipment. The industrial park aims to develop Zhuhai into one of the four largest production sites for high precision digital control equipment in the Mainland.

Given their political status as special administrative regions of the Mainland, Hong Kong and Macau are not subject to CAAC scope of control and so not formally “mapped” in China’s five year planning process. Hong Kong is in the process of drafting a Master Plan for 2030, while Macau adopted a 5-year strategic development plan in 2009. Macau has not revealed any plans for expansion.

Due to anticipated traffic demand growth in the future, HKAA is now studying the feasibility of mid-field expansion that will meet demand up to 2020 as allowed by the planned increase in runway capacity, i.e. a gradual rise in hourly movements to 68 movements to 2015. The cost for the expansion in mid-field amounts to about HK\$9 billion, including a railway to connect it to the main terminal. Additional runway capacity is also being discussed to deal with capacity challenges beyond 2020, as suggested in the *HKIA Master Plan 2025*. The HKAA plans to undertake an extensive public consultation on development needs by end 2010. It is estimated that if the public

⁴⁴ ‘珠海航空園貴州招商’, *Wen Wei Po*, July 14, 2010, page B07.

supports the construction of a third and perhaps a fourth runway and the government approves the program, construction would start in 2 or 3 years and may be completed by 2020.

Why are Mainland hubs different and complementary?

It is reasonable to ask, taking account of the above comparative insights, whether Hong Kong's role as an aviation hub is naturally and necessarily different from the roles of China's other key international hubs, or whether these hubs could perform as well as or better than Hong Kong with appropriate strategic focus.

Since each of China's key international hubs have their own distinctive roles and areas of competitive advantage, there is no simple answer to this question. (*see Table 1.3 on page 22*) Beijing and Shanghai are located in, and serve different large geographic regions, with a heavy responsibility to meet the needs of China's fast-growing domestic air traveller. Neither sit so close to the heart of a colossal community of export processing factories, as do Hong Kong and Guangzhou. Neither have the long-standing clustering of aviation services companies, in particular focused on air cargo logistics. This clustering could undoubtedly over time be developed: Given the distance of these hubs from Hong Kong, and their role at the heart of different air services regions, there is little doubt that the clustering may emerge over time, given appropriate investment and skills development. But the time taken for such clustered strengths to aggregate cannot be underestimated. Experience elsewhere in the world suggests that clustered strengths, once created, provide sustaining competitive advantage for many years.

The question of Guangzhou Baiyun's optimal development is harder to answer. The airport clearly sits at the heart of the same dynamic export processing region that drives the Hong Kong hub, and so is well placed to build competitive advantage alongside Hong Kong in air cargo services. This undoubtedly explains the recent decision of Fedex to move its Asia consolidation hub from Clarke Airbase in the Philippines to Baiyun. Baiyun also has more physical space available for expansion and the addition of runways and other airport-related services. Where the low cost of such infrastructure is critical, this would clearly over time be a basis for competitive advantage in Baiyun. The location of Baiyun 100km north of Hong Kong places it closer to manufacturers based in the

north of the PRD, in northern Guangdong, and in northerly neighbouring provinces like Jiangxi, a further foundation stone for future competitive advantage.

At the same time, however, Baiyun faces immense pressure to shape development around the fast-growing needs of domestic Chinese travellers – a clear contrast with Hong Kong’s over-riding focus on international (indeed, inter-continental) travellers. It is noteworthy that 97 new domestic airports are in the process of being built, with a further 40 being modernised⁴⁵ (*see Map 1.1 on page 20*) – suggesting that pressure will be intense not just on Guangzhou but also on Beijing and Shanghai to assign capacity for fast-growing domestic travel demand. Guangzhou also lacks the headquarter hub, financial services and global trade intermediation roles so critical to the distinctive role of the Hong Kong hub.

It might be possible over time to overcome the implications of such significant competitive differences to build Baiyun to emulate or even draw services away from the Hong Kong hub, but this would likely be colossally expensive, and would almost certainly not be a rational or optimal use of limited financial resources. Such a strategy would also pre-empt appropriate focus on Guangzhou’s optimal potential – which would be based on its own areas of clear competitive advantage.

b) Potential for airport cooperation: a UK comparison

Airport development pressures around the Greater PRD have led to concern over the opportunities and threats to Hong Kong’s aviation development in the long run. A key area of discussion in recent years has been potential airport cooperation in the region. Such regional cooperation may be distinct in both concept and operational practicability in the world. Many city regions are served by more than one airport, such as Seoul, Shanghai, Paris, Moscow, New York and Washington – even Montreal, but there is no clear evidence of meaningful air services cooperation between such airports. To explore more carefully the potential for inter-airport cooperation within a single aviation region, it was decided to examine the experience of London. Like the PRD, the London region is served by 5 airports. (*see Appendix K*)

⁴⁵ CAAC, *National Civil Airport Development Plan*, Feb 2008.

Drawing on insights from the London airport study, it is clear that there are both strong similarities and dissimilarities between airports serving the metropolitan London region, and those serving the Greater PRD. These are highlighted below.

Geography, demography and physical infrastructure

Unlike the five London airports, which basically surround the London metropolitan area with each airport not close to one another, the Greater PRD airports are crammed in the south-eastern part of the Greater PRD region and serve a number of distinct city regions. Except for the Guangzhou airport, the four PRD airports are located within 100km radius of each other and are reliant on a similar flight path.

The population of the PRD is nearly 8 times that of Greater London. The combined GDP of the Greater PRD is around US\$699 billion in 2009, double that of London, but on a per capita basis London is nearly 3.3 times richer. Clearly, this points to the lower level of living standard within the Greater PRD region, with a much larger proportion of the London local population being able to afford to travel by air.

The five London airports serve the 7.6 million residents living in London, expecting to increase to 8.6 million in 2026.⁴⁶ They are also the most convenient airport locations for a large proportion of Britons living in the southern part of the UK, perhaps comprising a population of 25 million people. London is home to the European headquarters of 33% of the world's largest companies and the financial and business services are at the centre of London's economy. London contributes around 18.8% of the UK's total GDP.⁴⁷ (*see Table 3.8*)

⁴⁶ London is the second largest region in terms of total population, accounting for 12 per cent of the UK total. The population figure refers to 2007. See 'Regional Profile: London Summary', Office for National Statistics, UK.
<http://www.statistics.gov.uk/cci/nugget.asp?id=1132>.

⁴⁷ Data refers to 2007. This refers to the gross value added (GVA) of London's to UK's GDP. UK uses this indicator to measure the contribution of each region to the country's total GDP. The measurement of GVA is equivalent to GDP. See London School of Economics (2008), *London's Place in the UK Economy, 2008-2009*. London: City of London.

Table 3.8: GDP and Population of London and Greater PRD

	GDP (billion)	Population (million)	GDP per-capita
Greater PRD	US\$699	52.5	US\$13,314
Hong Kong	HK\$1,633.5 (US\$210.6)	7	HK\$233,239 (US\$30,065)
Macau	MOP\$169.34 (US\$21.2)	0.54	MOP\$311,131 (US\$38,968)
PRD	RMB 3,200 (US\$467.2)	45	RMB67,321 (US\$9,829)
Greater London	£217.5 (US\$332.6)	7.6	£28,781 (US\$44,006)

Note: Greater PRD data refers to 2009; London data refers to 2007, the latest available data.

Source: Statistics and Census Service, Macao SAR; Census Department, HKSAR; PRD Statistical Yearbook 2009); Office for National Statistics, UK; and London's Place in the UK Economy, 2009-2010, City of London, (October 2009).

Intermodal capabilities

London's airports are strongly connected into Britain's high speed road network via the M25 orbital motorway and London's well-developed hub-and-spoke motorway network. They are also well served by railways, though services connect them to the metropolitan centre of London, rather than to each other. As a result, London's airports tend to operate as origin-destination airports, with only Heathrow providing any substantial passenger transfer capacity. There is little interconnectivity between the airports, and negligible evidence of passenger transfers across airports.

By contrast, multimodal capabilities of PRD airports are ill-developed and ill-coordinated. While Hong Kong airport boasts excellent rail access to the Hong Kong metropolitan area, neither Shenzhen nor Guangzhou airports can yet boast similar links. Nor are any of these airports well located for the embryonic national high speed rail network due to be fully operational by 2015. The region's high speed road network is also still in the process of development, so does not offer any of the region's airports what could be described as superb high speed road connectivity to metropolitan centres in the region.

By contrast with London's airports, there appears to be a greater interest in the PRD in inter-airport connectivity. Only recently, Cathay Pacific has resumed services between Hong Kong and Guangzhou aimed at channelling international passengers into this important Mainland destination, and enabling Mainland passengers to transfer through

Guangzhou and on to HKIA if they are travelling to distant international destinations. In addition, there is substantial land- and ferry-based transport between HKIA and Shenzhen Baoan facilitating passenger transfers between the two airports. Plans are also under consideration for a high-speed rail link between the two airports that would amplify this capacity, as well as provide easy access to the fast-developing Qianhai area in the west of Shenzhen, at the western end of Shenzhen’s mass transit rail system.

National versus international business

Table 3.9 compares the number of domestic and international airlines served at the respective London and PRD airports in 2009.

Table 3.9: Number of airlines served at the London and PRD airports, 2009

Airport	Local airlines	International airlines	Total
London			
Heathrow	3	87	90
Gatwick	6	61	67
Stansted	2	15	17
Luton	4	5	9
London City	2	8	10
PRD			
Hong Kong	5	80	85
Macau	1	16	17
Guangzhou	11	19	30
Shenzhen	17	11	28
Zhuhai	14	-	14

Source: the respective airport websites.

Heathrow serves as hub for only the bigger airlines – British Airways, Virgin and bmi. BA and Virgin also have Gatwick as their hub. Gatwick is also the hub for many budget airlines like EasyJet, Monarch, etc. There are significant overlaps between the airlines that choose Gatwick, Luton and Stansted as their hubs. For instance, EasyJet chose all 3 of them as its hubs. Ryanair, Monarch and Thomson are 2 out of the 3. A Belgian carrier, VLM Airlines (operating under the brand name City Jet since May 2009), is the only airline choosing London City Airport as its hub.

It is thus clear that in the London region, Heathrow and Gatwick compete with each other in terms of services offered by a substantial critical mass of international airlines, with the remaining hubs depending more heavily on local carriers. By contrast, Hong Kong stands out in the PRD in serving a large critical mass of international and intercontinental carriers.

If China's large domestic economy is taken as comparable to the European economic region, and China's domestic services taken as analogous to services between London and other European destinations, then a powerful similarity emerges in the comparison of services from London and PRD airports. It is clear that in London, all airports except Heathrow rely heavily on services within the European region: only Heathrow airport provides a strong platform for services beyond Europe. By comparison, in the PRD, only Hong Kong provides a strong platform for international and inter-continental services. All of the other airports – including Guangzhou – predominantly serve the needs of domestic travellers.

Air space management

The airspace of the PRD region is very complicated. Three different air traffic management authorities oversee flight movements in the area, using different operation procedures and standards. All are subordinate to the Chinese military in terms of rights of access to the region's air space. There are no systematic or direct communication platforms between the five airports.

In addition, an "Invisible wall" exists between Hong Kong and Macau on the one hand, and the Mainland on the other, the result of three separate aviation information zones. When aircraft leave HKIA airspace, they are required to reach a specific altitude before they are allowed to climb "over the wall" into Chinese Mainland airspace. This results in extra flight time and fuel consumption, as well as logistical complications for air traffic controllers.

As a third complicating factor, the directions of runways in HKIK, SZIA and Macau airport are almost identical, resulting in a significant flight path alignment for aircraft landing in or departing from all three of these airports. At the very least, this convergence means aircraft arriving in all three airports have to share the same flight path, requiring

collaboration, and reducing the take-off and landing opportunities for each airport. (*see Table 3.10*)

By comparison, the London region falls under a single air traffic control regime, with each of the city region's airports having distinct flight paths. This minimizes conflicts and potential confusion in air space management, and enables more intensive use of runways at each airport. This is one reason why air traffic movements at London's airports reach higher levels than those achieved in the PRD airports.

Table 3.10: A comparison of air traffic movements of the London and PRD airports

	2009 Passenger	2009 Freight (Tonnes)	2009 Aircraft Movement	Number of Runway	Average Daily Movement per runway
Greater PRD					
Hong Kong	46,134,000	3,348,000	279,505	2	383
Guangzhou#	37,648,712	955,270	308,863	2	423
Shenzhen#	24,486,406	605,469	202,627	1	555
Macau	4,250,249	52,464	40,601	1	111
Zhuhai#	1,385,858	13,760	23,149	1	63
Total	113,305,225	4,974,962.62	854,745	7	
London					
Heathrow	66,036,957	1,277,650	466,393	2	698
Gatwick	32,392,520	74,680	251,879	1	754
Stansted	19,957,077	182,810	167,817	1	502
Luton	9,120,546	28,643	98,736	1	296
London City	2,796,890	-	76,861	1	230
Total	130,303,990	1,563,783	1,061,686	6	

Note: # air freight data includes freight and mail. Average Daily Movement Per runway is calculated with total aircraft movements by no. of runway and 365 days.

Source: London data taken from Civil Aviation Authority UK. (accessed on Mar 16, 2010). Average Daily Movement Per runway is calculated with total aircraft movements by no. of runway and 334 days. The Greater PRD airport data taken from CAAC, Hong Kong Airport Authority and Macau Airport Authority Websites. (accessed on Feb 9, 2010).

Passenger mix

At London's airports, only Heathrow carries a substantial proportion of business travellers. The other four rely heavily on holiday travel for individuals and groups. In the PRD region, it is arguable that Hong Kong has a predominant position in serving business travellers, but no similar bifurcation of the travel market is apparent. How this mix will develop over time may be important in defining the distinctive roles of each airport in the region.

Origin-destination business versus transfer business

Only Heathrow in the London region, and Hong Kong in the PRD region, provide a substantial hubbing capacity for travellers wishing to transfer to onward destinations. Whether the other PRD airports, in particular Guangzhou, aim to build – or are successful in building – this hubbing capacity will be a key determinant of the pattern of competitive development between Hong Kong and Guangzhou. At present, Hong Kong retains a significant competitive advantage in this area, which is likely to take considerable time to erode.

Cargo business

In London, only Heathrow provides air cargo handling capacity on any scale, and Europe's airlines rely very little on air cargo revenues in their business models. By contrast, Hong Kong, Guangzhou and Shenzhen are devoting attention to building air cargo business with many locally-based airlines relying on air cargo business to underpin their business models. Hong Kong remains dominant in this area, with ambitious plans to build air cargo handling capacity and increasing reliance on transfer business, rather than origin-destination consignments. But Guangzhou has similar ambitious plans to develop air cargo capacity. Its aspirations to develop air cargo business are currently hampered by China's comparatively complex customs regime (*see Table 3.3 on P. 51*), suggesting that Hong Kong may be well placed to maintain and extend its leadership in this area for many years to come.

Scheduled versus charter services

In the London region, only Heathrow boasts mainly scheduled services. By contrast, other London airports operate a much larger proportion of charter services which take advantage of constantly-changing seasonal opportunities arising from seasonally changing tourist interests (services to ski destinations through winter, for example, and to southern European beach resorts through the summer months). Such charter services can be flexibly and efficiently offered with open skies across the European air space region, where airlines can launch or terminate services to particular destinations at short notice and in response to fast-changing traveller needs.

By contrast, all of the PRD airports depend more heavily on scheduled services. This is largely because of the fragmented nature of Asia's air space, and the need for airlines to negotiate country-to-country air services agreements before winning the right to launch services to and from specific foreign destinations. While in principle carriers operating within China's domestic air space ought to be able to develop services similar to those of Europe's low cost carriers, in reality, management of air rights around Chinese air space remains complicated by military control, inhibiting the development of chartered services on a scale seen in Europe.

The potential for development of PRD inter-airport synergies: lessons learned

As described at length in *Appendix K* inter-airport synergies have not in any measureable way been developed in the London area. Each airport serves a distinct set of needs and performs distinctive roles, in many contexts competing head-to-head both to attract airlines, and passengers. Anecdotally, this appears also to be the case at the 13 or so other cities worldwide that are served by multiple airports.

While there are clear differences between the London region and the PRD (most notably the fact that the PRD has several large, distinct population centres, compared with London's overwhelming dominance of its own aviation region), the similarities are suggestive: in both regions, only one airport serves intercontinental demand, operating as a transfer hub – Heathrow in London and Hong Kong in the PRD; developing in the competitive shadow of the predominant hub, only one other airport in each region has

developed substantial critical mass, each depending more heavily on “domestic” and tourism demand. The other three airports in each region have remained comparatively small, mainly serving short-haul and tourist demand. Air cargo business has tended to cluster on just one hub in each region (though in this instance, GZIA’s determined push to build cargo business may produce a different future).

Even though global precedent suggests that inter-airport cooperation does not naturally develop, with air travellers showing great reluctance to use routes that involve inter-airport transfers, governments in the PRD area nevertheless made some efforts to identify the role of each airport in the region and promote coordination and cooperation between them. So far, actual collaboration between Greater PRD airports remains limited, however. Guangzhou’s Baiyun has frequently voiced ambitions to become the leading airport in the region, eventually surpassing HKIA, and so despite rhetorical commitments to cooperation, in reality intense competition can be expected between the two airports.

While competition between Baiyun and HKIA is perhaps inevitable, collaboration has begun to develop between Shenzhen and HKIA, based on Shenzhen’s superior services and frequencies to Mainland city destinations, and Hong Kong’s superiority as a regional and intercontinental transit hub. Ferry and taxi services facilitating movement between the two airports are already in operation, but the most significant breakthrough would be agreement to establish a direct high-speed rail link between the two airports. This would be costly, and so (in Hong Kong at least) controversial, but latest Government-to-Government plans retain commitment to exploring such a railway service. Because it is unclear whether this rail service will go ahead, or what specific form it would take, it is at present difficult to anticipate how it would alter the competitive environment for the region’s airports.

A severe obstacle to meaningful inter-airport cooperation is the fact of the separate institutional standing of Hong Kong and Macau as air services entities. Home carriers in Hong Kong and Macau have no rights to operate services from Shenzhen, Zhuhai or Guangzhou, and would be unlikely to receive such rights. The same is true for Mainland home carriers in any efforts to build Fifth Freedom services through Hong Kong. As a result, carriers using these airports have little commercial incentive to build transfer

capability – by doing so they would simply be transferring their own passengers to competitor airlines.

A further critical obstacle to cooperation is the non-transferability of each city's bundle of air services agreements. Even if each airport were willing to "share" the air service rights, no foreign government would endorse such transfers. For example, if Hong Kong offered to transfer some of its air service rights to south east Asian cities to Shenzhen airport, no south east Asian government would endorse such a transfer: each right has been painstakingly negotiated at a bilateral level, in carefully tailored response to the demands of their own home carriers. These home carriers would without question object to such rights being transferred away from Hong Kong. Recall the protracted arguments over proposed transfers not between airports, but between terminals at Heathrow and Gatwick in efforts to relieve pressures on specific terminals. Recall too arguments over transfer of air rights from Hongqiao to Pudong airports in Shanghai. The awkward reality is that Hong Kong has 66 air services agreements bilaterally negotiated over many decades which apply to home carriers from Hong Kong and the bilateral partner. To alter these either by proposing the addition of home carriers, or by suggesting transfer of certain rights to nearby airports would require substantial renegotiation of each air services agreement – a daunting multi-year challenge that would likely attract fierce resistance from foreign carriers currently operating under air services agreements with Hong Kong.

Capacity and future constraints

Both Heathrow and Gatwick are severely capacity constrained at present. The recently-defeated Labour Government in the UK was committed in principle to building a new (third) runway at Heathrow, but this proposal has now been overturned emphatically by the recently elected Conservative-Liberal Democratic coalition government. This means the Government must instead fall back on a plan to add a new runway at Gatwick – but only after development restrictions are lifted in 2019. This is expected to leave London increasingly capacity constrained over the coming decade, with no prospect of relief until the mid-2020s. In the intervening period it is uncertain how many international airlines will be forced to move their hub/transfer services to other European cities like Amsterdam, Frankfurt, Paris or even Helsinki.

In addition to transfers away from London as a hub, it can be expected that Heathrow will be forced to allow significant transfer of all potential future growth to Gatwick, no doubt including both intercontinental passenger services, and air cargo business – a significant change in the pattern of competitive development between London's airports. Meanwhile, growth in regional tourist travel is expected to be absorbed by the (approved) addition of a new runway at Stansted.

At present, in the PRD, Baiyun, Baoan and Hong Kong airports are capacity constrained, both because of conservative limits on flight movements per hour, and because of limits on runway capacity. In Shenzhen, this problem is expected to be relieved in two years time, when a second runway is opened. Guangzhou, which has ambitious plans to build out to five runways by 2020, is also well placed to ameliorate its capacity constraints.

Hong Kong faces a more severe challenge. Even after the reversal in passenger and cargo activity following the global economic collapse in 2008 and 2009, predicted growth projections are expected to take Hong Kong to its capacity limits by 2020, and perhaps significantly earlier – even if runway capacity can be lifted from the current 58 movements per hour up to 68 movements by 2015, as planned. The Airport Authority's Master Plan 2030, due to be released for consultation later this year, is likely to recommend construction of a new (third) runway at HKIA, and perhaps even a fourth. But such a recommendation is expected to be controversial and politically contested. If two additional runways are built, and completed by 2020, then it is possible that HKIA can continue to grow competitively. If a decision on such an addition is either delayed or rejected, then it is expected that by 2020, and possibly earlier, Hong Kong will see both passenger and air cargo services transferred to the competing hubs of Guangzhou and Shenzhen, with substantial negative effect on the clustered strengths built at the Hong Kong hub in past decades.

Chapter 4
Government Policies

4. GOVERNMENT POLICIES

While Hong Kong's success as an aviation hub has been strongly driven by the city's fortuitous location between China and Asia, and as a nexus linking Asia to Europe and North America, there have clearly been occasions where conscious policy decisions by the Hong Kong Government have contributed to and enhanced Hong Kong's leadership as a hub. This is in spite of criticisms that the Hong Kong Government lacks a focused and clear set of policies to promote Hong Kong's aviation development,⁴⁸ in particular complaints that it has resisted calls to adopt an "Open Skies" policy. Increasingly in the recent past, airport and aviation developments are being influenced by Government policy decisions in the PRD.

Overridingly in Hong Kong, the administration has been firm on the commitment to 'maintain Hong Kong's position as a centre of international and regional aviation' and to 'ensure that Hong Kong's airport capacity and air services are sufficient to meet the needs of the travelling public and shippers'.⁴⁹ And if data reflecting comparative performance in Asia is any measure, then the administration has been notably successful.

But past success is no assurance of success going forward, so it is important to examine the current Government policy stances, whether this is tending to consolidate Hong Kong's strengths or weaken them, and how these policies need to be evaluated and adjusted going forward.

⁴⁸ Law, C. K, and Raymond Yeung, 2002. *開放天空 – 剖析開放第五航權對香港的影響* [Open Skies – Implications of 5th Freedom liberalization on Hong Kong], Hong Kong: Economic Digest Publishing Ltd.

⁴⁹ Transport and Housing Bureau, HKSAR, 'Policy Issue - Issues in Focus', Transport and Housing Bureau website, <http://www.thb.gov.hk/eng/policy/transport/issues/> (accessed on Mar 23, 2010).

Policy initiatives have had greatest influence in the following areas:

- a. The Basic Law
- b. Airport infrastructure supply
- c. Air services network
- d. Air transport licensing regulatory regime
- e. Regulating for low-cost airlines
- f. Capacity of local air traffic management
- g. Hong Kong-PRD cooperation policy issues: airspace congestion, intermodal connections in the PRD region

a) The Basic Law

Aviation policy since 1997 has been shaped – and sometimes constrained – by the dedicated articles in the Basic Law defining the separate status of Hong Kong in aviation, and stipulating the autonomy of Hong Kong government to administer aviation affairs and negotiate air service agreements with other country partners (Articles 128-135).

Some key policy insights are derived from or rooted in the Basic Law, which include:

- the specific reference in the Basic Law reaffirming the importance of the aviation sector in the Hong Kong economy, and later recognising aviation as one of the four pillar industries of Hong Kong that requires more policy attention of the administration, including policy support to promote the aviation industry and investment in aviation facilities.
- the definition of home carriers, that are ‘incorporated in the HKSAR and having their principal place of business there’ (Article 133 (2), 134 (2), and 135).
- Hong Kong’s independence – delegated from Beijing - in negotiating air services agreements with other countries limits the agreements to Hong Kong only, and excludes the authority to offer rights to fly to, from or through the Mainland. These are regarded by Beijing as “de facto” cabotage rights, which are the negotiating prerogative of Beijing. (Article 133)

Policy challenge and recommendations:

- ***It is likely at some point in the not distant future, rewording of the Basic Law articles relating to aviation will need to be adjusted in order that they do not***

become an obstacle to optimal development. Practical challenges linked with this rewording should be scoped now, in anticipation.

- *Specific re-examination of the definition of home carriers, to ensure that this does not act as a barrier to the establishment of bona fide airlines committed to building the Hong Kong hub as their home base.*
- *Specific examination of redrafting to optimize flexibility incooperating with Shenzhen and Macau airports.*

b) Airport infrastructure supply

Transport and Housing Bureau (THB), which oversees aviation affairs, and the Hong Kong International Airport Authority (HKAA), which is responsible for airport business and operation, recognized the anticipated capacity constraints of the Chek Lap Kok airport (HKIA) as early as 2006 in the *HKIA 2025 Master Plan*, even though at this point Hong Kong's airport at Chek Lap Kok was just six years old. The ultimate design capacity for aircraft movements is 60 takeoffs/landings per hour. However, the current aircraft movement at peak hours has already reached 58. According to Aviation Policy Research Centre, HKIA will finally reach its maximum capacity by 2015 if growth is maintained at 5% per year (even taking into account the recession-induced dip in 2008-09),⁵⁰ while HKAA predicts, with a 3% growth rate, that capacity will be constrained by 2018-2020 if the rebound from the 2008 global crash is sustained.⁵¹

A key suggestion of the *HKIA 2025 Master Plan* is to build a third and perhaps a fourth runway, proposed to be located together to the north of the existing airport runways, to satisfy growth demand up towards 2030.⁵² HKAA senior executives have indicated that a detailed proposal for on-airport development, including for additional runway capacity, will be presented in the HKIA 2030 Master Plan, which is due for release by end 2010. It has also indicated that a public consultation on the development plan will follow.⁵³

⁵⁰ Fung, Ka Yiu, '香港機場需要「第三跑道」?' *Hong Kong Economic Journal*, page 35.

⁵¹ Interview with HKAA (February 24, 2010)

⁵² Hong Kong Airport Authority (HKAA), 2006. *HKIA 2025 Master Plan*, Hong Kong: HKAA.

⁵³ Interview with THB.

Potential controversy over the need for new runway capacity includes the construction cost, especially after the controversial West Kowloon High Speed Rail project linking Hong Kong to China's national high speed rail network, and environmental concerns including the impacts on white dolphins and noise pollution in the surrounding area.

Nevertheless, the Hong Kong government has indicated support for the initiative to explore the feasibility of building additional runway capacity, reckoning supply capacity is a key factor in maintaining the competitive edge of HKIA and maintaining Hong Kong's leading aviation hub status. The aviation industry has indicated anxiety about the slow progress of the new runway plans, fearing that supply side constraint will "push" airlines to other hubs, undermine the clustered strengths to the hub, and stunt potential future growth. Aviation experts estimate that, even on a fastest track, the runway cannot be completed until 2020, considering that the consultation process and funding approval may take 2-3 years, with over 10 years for reclamation and the runway construction works.⁵⁴

To address capacity constraints by maximising existing runway capacity, a number of policy initiatives have been taken to add capacity at the airport. In January 2006 HKAA announced a HK\$4.5 billion investment programme, which included \$1.5 billion in improvements to the Passenger Terminal Building. In February 2007, a new Terminal was opened, together with the SkyPlaza. The remainder was invested in the airfield, including the construction of the North Satellite Concourse for smaller aircraft, which opened in December 2009.

A more recent initiative is a mid-field development project which was highlighted in the Chief Executive's 2009-10 Policy Address.⁵⁵ The mid-field development project is to provide additional aircraft stands and apron facilities and a new passenger concourse.

⁵⁴ Fung, Ka Yiu, '香港需要「第三跑道」', *Hong Kong Economic Journal*, April 15, 2010, page 35.

⁵⁵ HKSAR Government, *2009-10 Policy Address: Breaking New Ground Together*, HKSAR Policy Address Website, October 14, 2009. <http://www.policyaddress.gov.hk/09-10/eng/index.html>

The Civil Aviation Department (CAD) is also upgrading the Air Traffic Control (ATC) system to smooth landing and take-off time. HKAA and the Government say the initiatives will increase the airport's handling capacity to 70 million passengers and 6 million tonnes of cargo per annum, to cope with air traffic demand up to 2020. Take off and landing capacity will be improved in steps to 68 per hour by 2015.⁵⁶ HKAA has emphasised that this project and the Master Plan 2030 are important to position the airport for further growth and development in the medium to long term, thereby strengthening Hong Kong as a leading international and regional aviation centre’.

The challenge of maintaining the status of HKIA as a leading Asian air hub will arguably be determined by the aircraft-handling capacity of HKIA, and so this factor is seen to be of fundamental importance to the development of Hong Kong’s aviation economy. With fierce competition versus ambitious and expanding PRD airports, there seems to an urgent need to expedite consideration of plans to build additional runway capacity.

The Government faces a significant public policy challenge in winning support for additional runways not simply because of concern over cost and the need to minimise environmental impact but also because of views that alternatives exist that might enable continued growth without the need for additional runways. These views include:

- air traffic management measures to expedite and enhance utilisation of existing runways above the current 58 landings/takeoffs per hour.
- Collaboration with either Shenzhen or Macau (or both) to relieve pressure on Hong Kong and “spread” growth across the three airports.

⁵⁶ ‘AA Chairman Welcomes CE's Support for HKIA's Midfield Development’, Hong Kong Airport Authority, October 14, 2009, http://www.hongkongairport.com/eng/media/press-releases/pr_972.html

On information currently available, it is clear that while both of these options have merit, neither of them mitigate the need to plan urgently for a third (on indeed a fourth) runway at Chek Lap Kok. Building runway capacity gradually to 68 or more takeoffs and landings per hour might “buy time” for Hong Kong, but not much time. And as already discussed (*see pp. 67-68*) there are also major practical barriers to a “division of labour” approach to collaboration between Hong Kong, Shenzhen and Macau. These include:

- Inconvenience for air passengers, especially for transit passengers, and how to ensure the baggage handling efficiency, when baggage is required to be transported across the border. There is no example anywhere in the world of airports being able to collaborate successfully in such a way (see the earlier chapter on the London airports, for example) – certainly not to the satisfaction of transiting passengers.
- Customs clearance for air cargo travelling between two airports
- Air service operation rights under the one-country-two systems arrangements under the Basic Law, and under the terms of each airport’s array of bilaterally-negotiated air service agreements. There is no legal precedent for air services rights embodied in an air service agreement being extended to a separate air service regime. At the same time, the carefully defined requirements for a ‘home carrier’ in Hong Kong, Macau or Shenzhen present currently-insurmountable obstacles to respective home carriers being able to build operations in the other two collaborating airports.
- Practical and political challenges in structuring joint management of the collaborating airports.
- Uncertainty over the economic ramification of traffic diversion to other airports on the long-term economic development of Hong Kong. Each administration would nurture concerns over possible loss of jobs, and Hong Kong in particular would face uncertainty over erosion of its role as a gateway, and dilution of the hard-earned status as a headquarter hub.

Examination of these factors, and of possible precedents from elsewhere in the world, suggests that while improved air traffic management and enhanced collaboration with

nearby airports can relieve some pressure on the Hong Kong hub, the administration ultimately faces two stark choices: either build the third (and fourth) runway to enable steady growth in the economy's hub status over the coming decades; or opt not to build the runways, and consciously "gift away" future growth to other airports – most likely Guangzhou. If the first option is to be adopted, then massive investment in public education will be required in the coming year.

Recommendations:

- ***Government must carefully calculate the supply-side relief that will come from enhanced runway capacity, and cooperation with Macau/Shenzhen, and articulate why additional runway capacity remains essential. Public education on the issue must commence urgently.***

c) Air service networks

Hong Kong maintains a high level of independence in negotiating air services with other country partners. This special status has allowed Hong Kong to build on its competitiveness in air service networks, particularly as an aviation hub internationally as well as a gateway to the Mainland China. As provided for in the Basic Law,⁵⁷ the HKSAR "may, acting under specific authorizations from the Central People's Government, negotiate and conclude new air services agreements providing routes for airlines incorporated in the HKSAR and having their principal place of business there and providing rights for overflights and technical stops. These agreements cover scheduled services to, from or through Hong Kong, which do not operate to, from or through the mainland of China. "Hong Kong is also "given the authority to negotiate and conclude with other authorities all arrangements concerning the implementation of air services agreements."

⁵⁷ Article 128-135, The Basic Law of Hong Kong.

As of early March 2010, Hong Kong has concluded air services agreements with 66 country partners, 46 of which have been concluded since the handover in 1997.⁵⁸ According to THB, the general principle at the heart of policy on air services agreements is to achieve ‘reciprocal interests and benefits’ and ‘careful and well-considered liberalisation’.⁵⁹ This is in spite of persistent lobbying by a number of international airlines for unilateral liberalisation of 5th air freedoms and the unilateral adoption of an “open sky” policy. The Bureau has stressed that Hong Kong has no intention of adopting a unilateral open sky policy, in large part because this would undermine Hong Kong’s power to negotiate new air service opportunities on the economy’s behalf, to the detriment of the economy in general, and of Hong Kong’s home carriers in particular.⁶⁰

While well-aware of keen competition in air services with other PRD airports and the loss of air traffic to Cross-Straits direct links, the Bureau has been pro-active in enhancing Hong Kong airport’s connectivity. For instance, in the recent past, new air services have been established to a number of cities in India, to Milan and Moscow and to Tokyo’s in-town Haneda Airport, and to Hongqiao in Shanghai. Currently, the Bureau is negotiating with European Commission for a single air services.⁶¹

Policy challenges and recommendations:

- ***Remain proactive in negotiating new international air services agreements.***
- ***Give urgent priority to Hong Kong’s air services arrangement with the Mainland, in view of the benefits that could arise from fifth freedom and “de facto” cabotage rights, and the imperative to build effective links with newly emergent second- and third-tier Mainland hubs. This latter challenge will require meticulous modelling of changing air traffic patterns in the Mainland, as new airports are opened, and high-speed rail services alter the shape of demand.***

d) The Air Transport Licensing Authority

⁵⁸ ‘List of Air Services Agreements and Air Services Transit Agreements (as of March 3, 2010)’, Department of Justice Website, <http://www.legislation.gov.hk/table1ti.htm>. (Accessed on Apr 9, 2010)

⁵⁹ Interview with THB.

⁶⁰ See ‘開放天空’, *Ubeat Magazine*, No. 48 (2001), Chinese University of Hong Kong.

⁶¹ Interview with THB.

Air transport licensing – which authorizes the establishment of new “home carriers” – is governed in Hong Kong by the Air Transport (Licensing of Air Services) regulation, and is administered by the Air Transport Licensing Authority (ATLA). ATLA’s existing regulatory regime emphasises co-ordination of air services and actively seeks the avoidance of uneconomical overlapping of air services if such overlapping is seen to be against the interest of the public. Currently, there are four home carriers in Hong Kong according to the criteria set out by the Basic Law. These include Cathay Pacific Airways, Dragon Airways, Hong Kong Airlines, and Hong Kong Express Airways. They are subject to Hong Kong’s air transport licensing regulatory regime.

Competition in the aviation sector has historically been a subject of heated debate, in part due to the ‘one airline one route’ policy that was adopted for more than a decade from the mid-1980s. Under the ‘one airline one route’ policy, only one airline was allowed to operate an air service route. Since 2001, when Hong Kong Airways joined the aviation market, Hong Kong has abandoned the policy, instead emphasising support for competition on air routes with the critical mass to sustain it. The entrenched strength and synergistic development of Cathay Pacific Airways and Dragon Airlines in the hub continues to attract industry criticism, but this is addressed by the Government in terms of the value to the economy of facilitating the development of strong home carriers. There have also been criticisms of ATLA’s opaque regulatory regime in assessing airlines’ applications to launch services.

In October 2009, the THB indicated the intention to review ATLA’s regulatory regime with a view to enhancing regulatory oversight and promoting competition and innovation in the airline industry. In a briefing document to the Legco Panel on Economic Development, the Government addressed some of the problems of the existing regime following the 2008 collapse of Oasis Airlines. It pointed out that ‘it does not distinguish first-time applications and renewal applications for licences, nor impose notification requirements on licence holders, nor does it provide the power for ATLA to intervene when there are signs of any licence holder getting into financial difficulty,’ thus justifying the need to better regulate local airlines and to improve ATLA’s regulatory

regime in a number of areas.⁶² The Government revealed the plan to launch a public consultation on the proposals arising from the review of the Air Transport (Licensing of Air Services) Regulations by the end of April 2010. Legislative amendments to the Regulations will be tabled subjected to the outcome of the consultation.

Recommendation

- ***In hand***

e) Regulating for Low Cost Airlines

The failure of the long-haul budget carrier Oasis Hong Kong Airlines in 2008 drew attention on Hong Kong's policy in developing low-cost carriers (though Oasis arguably lacked the key characteristics of an LCC, and failed because of its own operational shortcomings rather than any purported LCC status). According to THB, the Hong Kong Government does not have a specific set of policies for low-cost or budget carriers, nor is preferential treatment given to these carriers in terms of airport charges. As a senior THB official said: "We treat them the same as traditional carriers. We welcome them to fly to Hong Kong."⁶³ Although existing policy does not intend to discriminate against low-cost carriers, the Oasis experience may demonstrate that development strategy of low-cost carriers based in HK requires careful consideration.

The fact that the Hong Kong administration refuses to provide bespoke regulatory and operational arrangements facilitating the incubation of LCCs has been attacked as a key reason why so few LCCs have failed to establish any meaningful operations from the Hong Kong hub. In reality, however, it is arguable that LCCs have so far failed to take root for other reasons:

- they face powerful structural challenges operating in the fragmented Asia-Pacific region (LCCs only took off in the US and Europe when the creation of a single regulated aviation region facilitated high levels of operational flexibility).
- Their quest for fast turnaround times pre-empts their ability to build significant cargo income into their operating model, putting them as a competitive

⁶² 'Proposals arising from Review of Air Transport (Licensing of Air Services) Regulations (Cap 448 sub. leg. A),' Document submitted to the Legco Panel on Economic Development, No. CB(1)1439/09-10(07), March 29, 2010.

⁶³ Interview with THB.

disadvantage to legacy carriers who benefit from income streams both from passengers and from cargo.

- Rigidity in being able to serve Mainland cities from Hong Kong – and in launching or terminating services in response to seasonal or other market-driven shifts in demand – effectively “robs” LCCs of the region’s largest market, pre-empting the opportunity to hub passengers speedily between the Mainland and other key Asian cities. Paradoxically, this rigidity also hampers Shenzhen, constraining its ability to build its own LCC operations alongside, or in competition with, Hong Kong
- LCCs in any case face fierce competition from Cathay Pacific and DragonAir. As one leading aviation analyst noted in interview: “Start-up LCCs have better ways to grow than to begin by going head-to-head with one of the world’s leanest, most efficient and competitive airlines.”

Recommendation:

- *Expedite addition of runway capacity to minimize supply-side constraint on airlines.*
- *Keep charging structure under review, perhaps offering choice of lower charges at “remote” facilities now being built.*
- *Expedite review/approval process for applications to launch new services, whether charter or scheduled.*
- *These conclusions are tentative, and the issue of challenges facing development of LCC activity in Hong Kong and the PRD deserves further close examination.*

f) Capacity of local air traffic management

The Civil Aviation Department (CAD) in Hong Kong is responsible for air traffic management, and the broad range of air safety issues. As such, it has historically adopted a highly conservative take-off and landing regime in Hong Kong, limiting frequencies to 58 movements per hour – low by comparison with many leading air hubs worldwide. This conservatism is justified by various reasons: the complexity of the air traffic management region in which Hong Kong operates (in particular the complexities of synchronizing with Mainland air traffic controllers who use metric measures, and who are subject to operational constraints by China’s military); the volatile wind conditions

around Chek Lap Kok, in particular vortexes formed by the high mountains that sit close to the airport; the antiquity of Hong Kong's air traffic control computer systems; and the time needed to train new air traffic controllers.

While there is merit in these arguments, there is a broad view, shared by many in Government, that more needs to be done to lift air traffic capacity. Funds have been provided to replace computer systems and train air traffic controllers. Intensified discussions have taken place on improved synchronization between Mainland, Hong Kong and Macau air traffic controllers. The Chinese military are in the process of creating more air corridors for civilian aircraft movement, and have begun to simplify movement between Mainland and Hong Kong air space, even for low-altitude flying by helicopters. The CAD has committed to lift air traffic movements to 68 per hour by 2015, and is under pressure to speed this process.

Recommendation:

- *Expedite introduction of new computer system, and coordinate where possible with PRD counterpart systems..*
- *Enhance air space management collaboration with PRD counterparts.*
- *Centralise and coordinate with PRD on air traffic control training*

g) HK-PRD Cooperation Policy Issues

The PRD Air Traffic Management Planning & Implementation Working Group, often referred as the Tripartite Working Group (TWG), formed by the civil aviation authorities of Hong Kong, Macau, and the Mainland in February 2004, is the key forum for discussing issues concerning improvement of the coordination of air traffic management in the PRD to meet the air traffic growth in the region, particularly to formulate an integrated plan to resolve long-term regional airspace congestion. As of end 2009, 15 meetings had been held to discuss measures to enhance the use of PRD air space. The policy goal of the TWG is progressively to improve air-traffic operations in the short term, and rationalise airspace management, air-traffic control and flight procedures over the Pearl River Delta region in the medium to long-term. (*see Appendix L*)

On the airport front, the five PRD airports are in dialogue through the PRD Airport Cooperation Forum, which was established in 2001. Cooperation focuses mainly on strengthening safety standards, enhancing services for diverting flights and their passengers, and training and development of personnel, of the five airports.

Nevertheless, the recent conclusion of the *Framework Agreement on Hong Kong/Guangdong Co-operation* provided greater impetus for cooperation in aviation.⁶⁴ The Agreement dedicates a section to aviation cooperation, and reaffirms the need for enhanced airport coordination as well as aviation policy harmonisation between Hong Kong and Guangdong province. It specifies policies to

- expedite the construction of cross-boundary highways, rail links and ancillary works, building a high class navigation network in the PRD, and so improve multi-modal connectivity,
- improve the mechanism of the Joint Meeting of the Five Major Airports in the PRD, proactively seeking national support for enlarging the air space in the PRD supporting the aviation status of each airport, and
- build a network of short-haul helicopter services in the PRD

The Agreement also reaffirms the respective roles of airports in the region to facilitate the flow of key factors such as people, goods, information and capital across the boundary. This further elaborated the development positions of the PRD airports as stated in the *Outline of the Plan for the Reform and Development of the Pearl River Delta (2008-2020)*. It is believed the strategy is likely to be addressed in the 12th Five Year Development Plan.

⁶⁴ The Agreement is signed on April 7, 2010 in Beijing. Full text of the *Framework Agreement on Hong Kong/Guangdong Co-operation* is available Hong Kong Information Department website, http://gia.info.gov.hk/general/201004/07/P201004070113_0113_63622.pdf.

Table 4.1 The respective roles of HK and the Mainland PRD Airports

Airport	Positioning
Hong Kong	Enhance its status as an international aviation centre
Guangzhou	Build into a composite aviation hub
Shenzhen	Build into a large scale core airport
Zhuhai	Build a short-haul helicopter transport network for PRD

Source: Framework Agreement on Hong Kong/Guangdong Co-operation

Inter-modal connections with the PRD region

Enhancing inter-modal connectivity between Hong Kong and PRD cities and airports is identified as a key strategy priority of the HKIA. The efficiency and extensive international connectivity of the Hong Kong airport is seen to be attractive to the 60 million population in the PRD area⁶⁵, especially those in the North-western PRD areas, which are located far from the PRD airports.

Because HKIA is located at the south end of PRD, it is further away from the passengers and manufacturers located deeper in the PRD than either Guangzhou's Baiyun or Shenzhen's Baoan. In recent years, Guangdong has rapidly developed and integrated its transportation infrastructure including airport, rail and road networks. Hong Kong, by contrast, has built PRD links only gradually and on a piecemeal basis, as a result connecting poorly with parts of the PRD market. For this reason, HKIA has taken a number of cross-boundary transport initiatives to improve its connectivity across the PRD, with the aim of deepening its catchment area.

- **SkyPier ferry services**

The temporary SkyPier was made available in 2003 to further facilitate the movement of passengers between HKIA and the Pearl River Delta (PRD) region. In

⁶⁵ According to official sources, the PRD region had a 'permanent population' of 47.72 million people in 2008. But some analysts place the population substantially higher, at 60 million or more. This is due to large migrant worker populations, which is not counted in official population register, in the region. See, Enright, Michael, et al., 2010, *The Greater Pearl River Delta*, Hong Kong: Invest Hong Kong.

2005, HKIA began offering ferry-based upstream check-in services at Shenzhen Shekou Port and the service was extended to Macao and Fuyong in 2007 and to Dongguan Humen in July 2008.⁶⁶ However, the ferry services via SkyPier did not yet seem very convenient for PRD passengers to reach HKIA, due to low frequency of ferry services. For instance, as of February 2010, about 5,000 passengers per day were using the SkyPier ferry services, while the daily air passenger traffic of HKIA was over 120,000.⁶⁷

The inconvenience is considered one of the key reasons for the initiative proposed in 2006 to strengthen connectivity and service quality with PRD by the construction of a permanent SkyPier.⁶⁸ The new SkyPier was commissioned in early 2010, replacing the temporary pier. Since then, high-speed ferries have been able to lift frequencies, making an average of 85 trips every day, shuttling around 5,000 passengers between HKIA and eight ports in the PRD and Macao. These include Zhongshan, Zhuhai Jiuzhou, Dongguan Humen, Guangzhou Nansha, Shenzhen Shekou and Shenzhen Fuyong as well as Macao's Taipa and Maritime Ferry Terminal. This allows passengers to get to their PRD destination from HKIA in an hour. Similar services are also operating between Hong Kong Airport and the Shenzhen Airport. The long term impact of the new SkyPier in bringing more traffic to the Hong Kong Airport remains to be examined due to the lack of data available for further analysis.

To encourage usage of the ferry services, passengers en route for overseas destinations via the pier are exempt from paying Hong Kong's \$120 departure tax. The provision of upstream check-in services at major SkyPier ports also allows passengers to obtain boarding passes and check-in luggage in the Pearl River Delta.

⁶⁶ Hong Kong Airport Authority, 2009. *Annual Report of the Hong Kong International Airport 2008-09*, Hong Kong: Hong Kong Airport Authority. Pp. 28-29.

⁶⁷ The passenger throughput of SkyPier is estimated based on the number reported in *HKIA news*, Issue 3, 2010, p 2

⁶⁸ Designed with the provision of eight berths (four at present) and a maximum capacity for 8 million annual passengers, the 16,500-sqm permanent SkyPier is eight times the size of the temporary facility. See 'Airport's New SkyPier and North Satellite Concourse Officially Opened', Hong Kong Airport Authority, January 15, 2010. http://www.hongkongairport.com/eng/media/press-releases/pr_983.html

- **Land connections**

At present, direct airport-to-airport land connections are limited to services between Hong Kong and Shenzhen airport. Shuttle services between the two airports have been improved in recent years in terms of service quality and frequency. To attract more passengers using SZIA, the airport is rigorously expanding access to shuttle services in the PRD region, setting up 20 check-in counters in the PRD region. The transit service at Kowloon station is one of their non-local check-in counters in the PRD region. Hong Kong passengers can take a direct 75 minute coach ride to SZIA at a cost of HK\$160 for a round trip. Although HKIA has also provided cross-border coach services into the PRD, it only has one check-in counter in Shenzhen.

Coach and limousine services that link HKIA with the PRD are available and popular for PRD passengers travelling to and from the Hong Kong Airport. HKAA reported that 1.3 million passengers used these services in 2008/09. The number of PRD destinations served by cross-boundary coaches increased from 70 to 90 in 2008/09 and the network was expanded to include Yangjiang and Zhanjiang to the west and Shantou and Chaozhou to the east. There are now 320 scheduled coach trips between HKIA and the PRD each day.

Currently, the governments of Shenzhen and Hong Kong are studying the feasibility of an express rail link between the two airports. The express rail, if built, is expected to further facilitate transfer activity between the two airports, and would have powerful, but as yet unquantified impact on development of the two airports. While this railway link has been approved by Beijing, detailed feasibilities have not yet been undertaken, and concerns remain that costs will be high.

- **Links to the western PRD: Hong Kong-Zuhai-Macau Bridge**

The Hong Kong-Zhuhai-Macau Bridge will link up the three places with fast and direct ground connections. The impact of the bridge after its completion is likely to be significant, especially on the ferry service between Hong Kong and Macau. For instance, the travelling time from Hong Kong and Macau will be shortened, from an hour at present by high speed ferries and hydrofoils to less than half an hour by car, once the bridge is in operation. This will provide speed and convenience not just for passengers, but also for air cargo to and from manufacturers in the western PRD. At

the extreme, some estimates have indicated that demand for ferry services between Hong Kong and Macau will drop “to about 10% of the current level” once the Bridge opens.⁶⁹ It is highly possible that Hong Kong and SZIA will be able to attract more passengers from Zhuhai and Macau after the completion of the bridge, for the intensive international and domestic air network offered by HKIA and SZIA. But at this early stage it is not easy to estimate impacts.

- **HKIA Check-in counter services across the PRD**

Check-in counter services are planned at different locations in the PRD as another means of enhancing linkage between Hong Kong and other PRD airports. In October 2008, HKIA and Shenzhen International Airport launched an upstream check-in service that lets passengers check in and obtain boarding passes for connecting flights from either airport.⁷⁰ The four Hong Kong-based airlines, alongside China Airlines and Mandarin Airlines, participate in this programme, which required the extension of HKIA’s data network to Shenzhen International Airport to support flight information displays as well as common-use terminal equipment. Although there is no current indication that the program will be extended to other PRD locations, it is believed that if the Shenzhen initiative proves successful, the initiative may be expanded in the future.

Apart from check-in facilities at airports, HKAA said it was considering the launch of a second land-based upstream check-in service in Yujingdongfang, Shenzhen, for passengers on Cathay Pacific Airways, China Airlines, DragonAir and Mandarin Airlines. A similar service at the Huanggang boundary crossing is being planned.⁷¹

⁶⁹ Cheung, Kwok Law, et al. 2008. *A Preliminary Investigation on the Feasibility and Implications of the HKIA-SZA Fast Rail Link*. Aviation Policy and Research Center, China University of Hong Kong.

⁷⁰ Hong Kong Airport Authority, 2009. *Annual Report of the Hong Kong International Airport 2008-09*, Hong Kong: HKAA. Pp. 28-29.

⁷¹ Hong Kong Airport Authority, 2009. *Annual Report of the Hong Kong International Airport 2008-09*, Hong Kong: HKAA. Pp. 28-29.

Recommendations:

- *Encourage intensive cross-boundary cooperation to optimize multimodal infrastructure development*
- *Undertake detailed feasibility study of high-speed rail link between HKIA and Baoan Airport.*
- *Expedite completion of infrastructure projects already underway.*

Chapter 5
Possible Future Scenarios

5. POSSIBLE FUTURE SCENARIOS

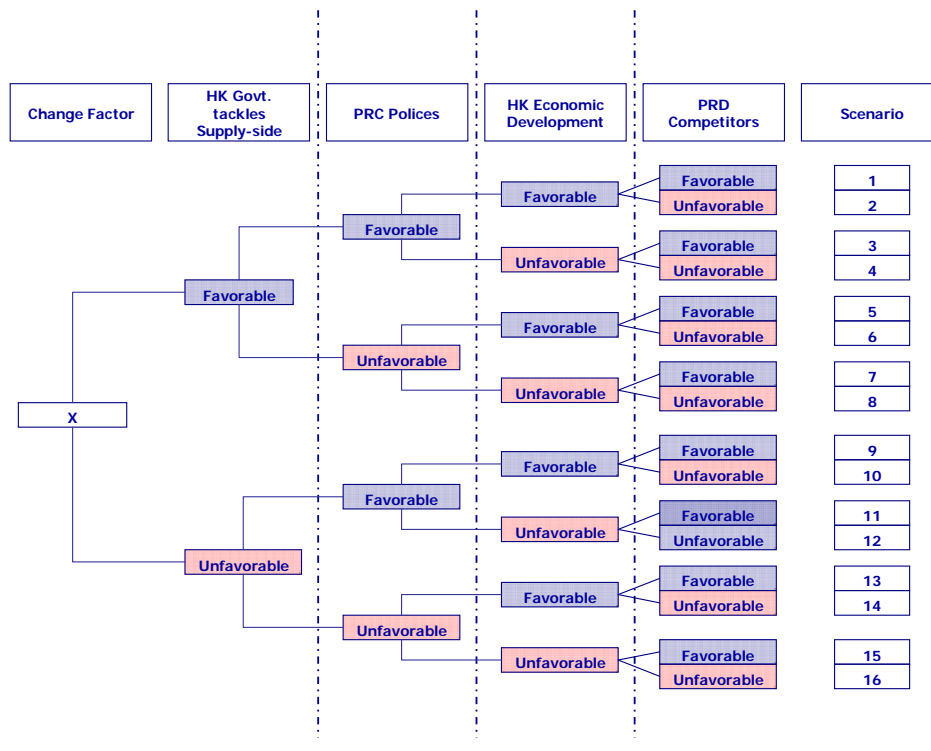
Drawing from the foregoing chapters examining the strengths and challenges facing the Hong Kong aviation hub in the decade ahead, our Focus Group brainstorming converged on four overall clusters of change factors that appear likely to have the strongest impact – for good or ill – on Hong Kong’s future success. These clusters were:

- **Success or failure in tackling supply-side constraints on future airport growth:** the study led us to conclude that even if all other influences were favourable to Hong Kong’s future development as an aviation hub, unless supply-side constraints were addressed as a matter of urgency, then future growth would be sub-optimal, with PRD competitors eventually superseding Hong Kong. Of particular importance will be success or failure in winning agreement on a third and fourth runway at Chek Lap Kok.
- **Mainland aviation developments, in particular national policies affecting aviation:** China’s domestic aviation market is set to grow at speed in the coming decade, with the potential to provide immense opportunities for existing and future airports across the country. If leaders in Beijing fully factor Hong Kong’s aviation hub into their national plans, and shape development plans in light of Hong Kong’s potential contribution to linking China’s market to intercontinental destinations, then the hub is likely to be very favourably influenced. However, if aviation planners in Beijing fail to take full account of Hong Kong’s potential offering, then the effect is likely to be strongly negative.
- **Success or failure in building Hong Kong as a specialised services hub supporting regional and national headquarter operations:** no matter how well Hong Kong’s aviation infrastructure is developed, if the global business leaders concentrated in regional headquarter operations choose for whatever reason to move elsewhere (and with them the financial and professional services that serve them), then the Hong Kong hub is unlikely to see strong growth going forward.

- **Competitive encroachment by aviation hubs in the PRD, in particular Guangzhou and Shenzhen:** successful development of Guangzhou and Shenzhen as aviation hubs – in particular development of international and intercontinental services – has the potential to erode Hong Kong’s comparative advantages as an aviation hub.

Using the four clusters of change factors identified above, it is possible to build a large number of possible scenarios describing Hong Kong’s aviation economy a decade from today. Starting first of all with the “Tackling supply-side challenges” cluster, one can immediately identify two scenarios – those arising if changes are largely favourable to Hong Kong, and those that might result from a failure adequately to tackle supply side blockages. Turning next to the cluster of change factors focused on impacts from Mainland aviation policies and market developments, these two sets of scenarios can be multiplied into four: two would be based on policy changes and market developments that have been helpful to the Hong Kong hub, and two based on changes on the Mainland have been generally unfavourable.

These four sets of scenarios can be doubled to eight by evaluating whether or not Hong Kong benefits from favourable external developments, including Government initiatives that strengthen Hong Kong as a headquarter hub. Finally, these eight possible scenario sets can be multiplied to 16 by gauging whether PRD competitor hubs develop aggressively and successfully, eroding Hong Kong’s traditional comparative advantages, or whether they fail to do so. These 16 scenarios can be represented graphically as follows:



Clearly, the sequencing of change factors is critical, and much time has been spent weighting the various clusters of change factors, and testing the consequences of altering the sequencing. The Consultant opted for the above sequence because of judgments based on interviewing and Focus Group brainstorming. We concluded that success in handling supply-side constraints took precedence both because it had profound implications for future development, however favourably other change factors might influence Hong Kong, and because this was largely in the hands of Hong Kong's own Government. Our conclusion was that the second most potent change cluster converged around country-wide developments, including Beijing's policies as they affected Hong Kong. The cluster linked with successful development of the Hong Kong economy was given precedence over the cluster linked with the success of aviation hubs in the PRD both because this cluster was under the control of the Hong Kong Government, and because of the judgment that even strong and successful development of the PRD airport hubs would do little to jeopardize the future of the Hong Kong hub if Hong Kong continued to build its powerful and sophisticated services economy, in particular its attractiveness as a headquarter hub and as a hub for the financial and professional services that support headquarter operations.

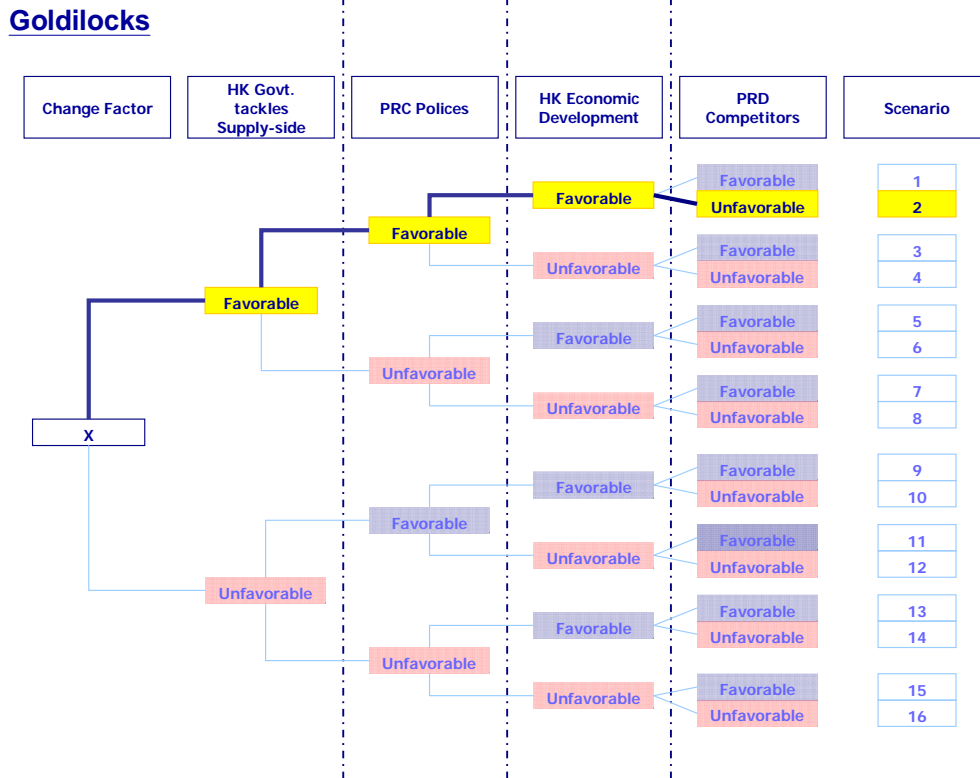
Using this methodology, Scenario 1 would (for example) describe a Hong Kong aviation hub unfettered in its ability to accommodate potential future demand, and benefiting from Mainland Chinese economic developments. Steady growth in headquarter operations in Hong Kong, along with the financial and professional services that support them, would fuel strong origination-destination business, and progressively stronger clustering of regional and intercontinental frequencies from the Hong Kong hub. Growth at Baiyun and Baoan would be more complementary than competitive, with strong Mainland growth (and China's strengthening interaction with global markets) bringing benefits to all hubs.

By contrast, Scenario 16 would describe a Hong Kong constrained by an airport that is full to capacity, and failing to optimize opportunities linked with growth in the aviation market across the Mainland. This Hong Kong would see headquarter operations being relocated in large numbers to Singapore and Shanghai, along with the banking and professional services that serve them. Strong-growing hubs in Baiyun and Baoan would benefit from powerful diversion of services from Hong Kong as Hong Kong's clustered strengths weakened, and as they built intercontinental and transfer capabilities to match and better Hong Kong.

By definition, scenario analysis cannot rule out any one particular set of outcomes over the coming decade. The entire purpose of the exercise is to keep open all plausible possibilities. There is value in tracking even improbable possible scenarios if the consequences associated with such scenarios are either powerfully positive or negative. However, for present purposes, the Consultant has mapped one highly likely scenario – “Business as Usual” – and then mapped two which capture upside and downside extremes – the “Goldilocks Scenario” and the “Gloom and Doom” Scenario.

Nonetheless, choosing among different scenarios is to some extent a matter of individual choice. If a reader disagrees with any of the assumptions built into the three scenarios constructed below, then it is a reasonably simple matter to reconstruct a scenario to take account of an individual's own choices.

a) **Goldilocks – based on Scenario 2:**



In this scenario, supply side obstacles to development of the aviation hub are effectively tackled by the government. This in particular means that the Government makes an early decision on building additional runway capacity, and is successful in speedily securing public support, and financing approvals. This not only enables Hong Kong to continue to match fast-growing demand for regional and intercontinental transfers and interconnectivity for both passengers and air freight, but also enables a fourth runway to be developed to prioritise smaller regional jets and executive jets.

The Mainland’s aviation planners restrain the intercontinental connectivity of Baiyun and Baoan, and their capacity as international transit hubs, facilitating Hong Kong’s regional leadership in this area. At the same time, China’s aggressive and optimistic predictions for growth in domestic air travel prove accurate, buoying the Mainland as Hong Kong’s hinterland market, seeding a number of large second- and third-tier hubs relieving pressure on Beijing and Shanghai, and adding significant numbers of additional airports.

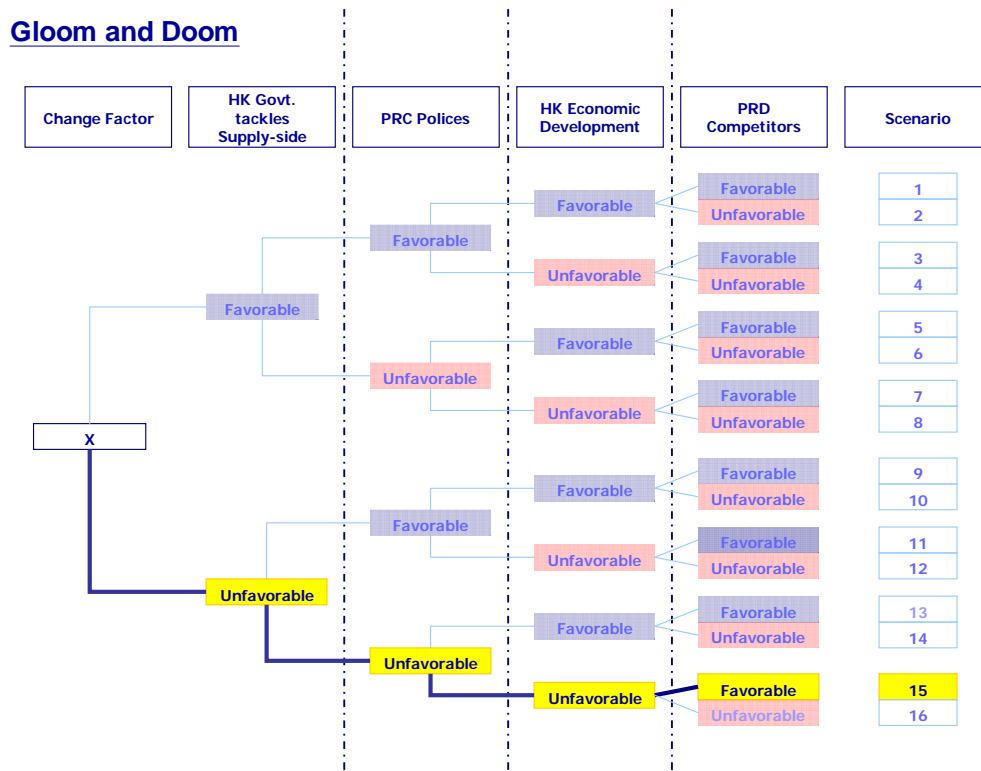
This enhances Hong Kong's role as an intercontinental transit hub for an increasing number of Mainland cities and international business travellers from the Mainland, and facilitates the development of low cost carriers focused on large numbers of Mainland tourists visiting international destinations. It also facilitates closer cooperation with Shenzhen, which will retain better domestic linkage and frequencies.

Because Hong Kong retains its attractiveness – and regional leadership – as a headquarter hub, providing home for the international headquarter operations of an increasing number of Mainland companies, so Hong Kong's professional cluster supporting headquarter operations – comprising legal, financial and accounting services in particular – continues to grow strongly, driving strong growth for the aviation hub. Protection of Hong Kong's distinctive free port status continues to give Hong Kong an unassailable comparative advantage in management of air cargo consignments arriving in, or leaving the region.

Baiyun and Baoan airports continue to grow strongly, with more international services, but remain predominantly focused on rapid growth in domestic services. In so far as Baiyun succeeds in building strong foundations for international air cargo services, its more-cumbersome customs clearance arrangements prevent it from encroaching hard on Hong Kong's core strengths in consolidation and deconsolidation, and in regional distribution centre services.

Such a scenario could drive growth averaging 7% per year in both passenger and air cargo traffic through Hong Kong, lifting passenger flows to more than 97 million a year by 2020, and air cargo to between 7-8 million tonnes.

b) **Gloom and Doom – based on Scenario 15:**



In this scenario, the Hong Kong hub starts to become severely capacity-constrained perhaps by as early as 2015 as the administration fails to win approval for construction of an additional runway. As a result, increasing numbers of passenger and cargo carriers would, between 2015 and 2020, seek to shift services to Baiyun and Baoan, building a significant clustering of aviation services in these hubs. Hong Kong’s competitive lead would be eroded at an accelerating pace in the second half of the decade.

In response to intense pressure from Baiyun in particular, Beijing would give the green light for several new runways in the key PRD hubs, enabling Baiyun and Shenzhen not simply to build their domestic connectivity, but to build up substantial frequencies to a large number of international destinations both in the region, and in the US and Europe.

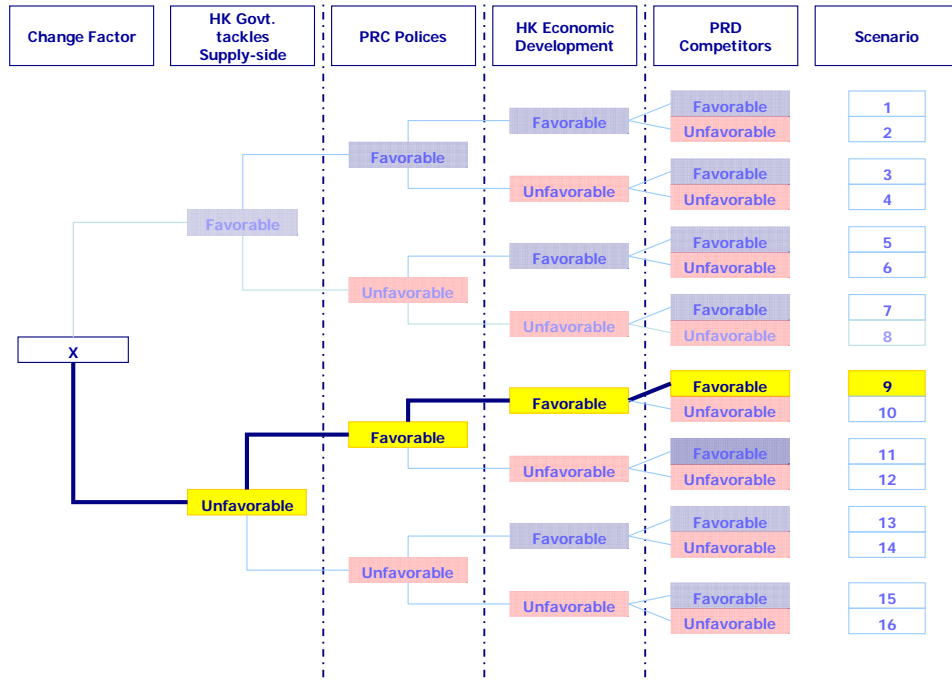
Currency convertibility, improvements in China’s legal system, and improving quality of life in a number of Mainland cities induces large numbers of multinational corporations to move China headquarters to Shanghai or Beijing. Once China headquarter operations

move, so the logic of maintaining regional headquarters in Hong Kong is undermined, in Singapore's favour. As the headquarter teams relocate, so the thousands of professionals providing legal, financial and accounting services to headquarter operations relocate with them. This greatly reduces the volume of high-value business travel between Hong Kong and the region, undermining the case for additional frequencies to regional and global business capitals. The number of cities served from Hong Kong declines, as does the frequency of services to and from those cities.

In this scenario, international business passenger traffic through Hong Kong stagnates, with any growth coming in the form of Mainland and regional tourists. An annual growth rate for passengers of just 1-3% leaves passenger volumes in 2020 around 55 million. One compensating positive would be a rise in dedicated freighter traffic through Hong Kong, following the addition of capacity from Cathay Pacific's new air cargo handling facility in 2013. Air cargo volumes could even in this gloomy scenario rise at a pace close to the "Goldilocks Scenario", reaching 7 million in 2020. This would be slightly lower than "Goldilocks" because of the stagnation in air cargo business in the bellies of wide bodied passenger aircraft.

c) **Business as usual – based on Scenario 9:**

Business as usual



In a scenario that could be regarded as highly likely, the Government fails to win approval for a new runway, or does so at a pace that is too slow to enable HKIA to keep abreast of rising demand, recognizing too late the limited potential for synergistic development with Shenzhen.

Even though Beijing’s policies towards Hong Kong remain sympathetic, and Guangzhou and Shenzhen airports fail to improve their service offering – and even though headquarter operations remain firmly based in Hong Kong – Hong Kong airport’s capacity to increase passenger and freight services through the hub becomes increasingly constrained from 2015. Airlines have no choice but to divert large numbers of services to Guangzhou and Shenzhen, and the pace of this diversion rises towards the end of the decade.

This capacity squeeze will force HKIA to “revert” to the situation prevailing in the final years of ‘Kai Tak operations’, in which the need to maximize passenger flows forces a bias towards wide-bodied aircraft. Low cost carrier operations, and much narrow-bodied traffic with Mainland cities, settle on other hubs. So too does the growing executive jet business. Air cargo volumes stagnate as the airport struggles to find capacity for smaller dedicated freighters. In this scenario, Hong Kong essentially “gifts” future growth to Guangzhou and Shenzhen – just as Heathrow airport in London must now do to Gatwick, following the UK Government decision to abandon plans for a new Heathrow runway.

Chapter 6

Conclusion: Hong Kong's Aviation Future – Prospects And Challenges

6. CONCLUSION: HONG KONG'S AVIATION FUTURE – PROSPECTS AND CHALLENGES

- **Hong Kong remains Asia's leading international passenger and air cargo hub.** In spite of a sharp reversal in the wake of the 2008 crash in the global economy, aviation activity has rebounded strongly, with first half 2010 data suggesting that all lost ground has been recovered. Whether this economic recovery can be sustained remains uncertain, but most important, **the crash does not appear to have affected Hong Kong's comparative attractiveness** as an aviation hub in Asia. No available data pointed either to a decline in Hong Kong's overall share of Asia-Pacific or inter-continental air traffic, or to an erosion of its intra-Asian hubbing role as Beijing and Shanghai build more direct links with other Asian cities like Singapore and Bangkok.
- **The aviation industry faces new challenges as economic activities apparently move to the north.** As China stimulates domestic consumer activity as part of its strategy to maintain growth following the global crash, and the massive PRD manufacturing economy dedicates more resources to meeting domestic consumer demand, so Hong Kong's long-standing locational advantages as a mediator between China and the global economy for China's export manufacturing activity - are likely to be eroded. A rising share of consignments is likely to travel directly north from PRD factories, rather than south to Hong Kong. The hub thus faces a "**challenge of relevance**" that will demand a careful strategic response from both business and Government.
- **The growth of other major Asian airports in recent years appears not to have challenged Hong Kong's aviation hub status.** While Beijing and Shanghai are set to become much larger than Hong Kong, these hubs tend to serve a different hinterland region, and will anyway be under relentless pressure to accommodate – and give priority to – fast-growing domestic demand. There also appears to be no concrete evidence that any south east Asian hubs have in any material way eroded Hong Kong's regional supremacy as a passenger and cargo hub, though it is too early to discern whether the China-ASEAN Free Trade Agreement, which came into force in

January 2010, results in any diversion of cargo transshipment business to Mainland cities in response to the FTA inducements to build direct trade between China and south east Asia.

- **Competitive challenges to Hong Kong are thus likely to be most intense from within the PRD** – from Guangzhou and Shenzhen. While Beijing leaders have repeatedly affirmed their support for Hong Kong as an aviation hub, the likelihood is for intensifying competition. At present, Hong Kong's superiority in reliability and efficiency, and in the clustering of relevant services and skills, is clearly recognized, but this is likely to be eroded steadily over the coming decade.
- Predictions of extremely strong domestic growth in air passenger and cargo activity – illustrated by plans to build 100 new airports in the coming decade – suggest that **the ambitions of Guangzhou Baiyun to challenge Hong Kong as an international transfer hub will be constrained**. But it would be strategically naïve to take this for granted, since Baiyun has the capacity – based on the potential to construct five runways – to grow far beyond Hong Kong's size.
- The establishment of direct air links across the Taiwan Straits linking Taipei and Kaohsiung with 33 Mainland cities will dilute Hong Kong's importance as an intermediary between Taiwan and the Mainland, leading to a short term decline in passengers and cargo between Hong Kong and Taipei, but **the development of direct links is unlikely to have any long term negative impact on Hong Kong** as an aviation hub. There are three main reasons: first, this opening up process is driven primarily by political factors and so will be gradual. Hong Kong carriers will have ample time to make adjustments. Second, the opening up process is likely to generate a massive increase in Cross-Straits travel, benefiting Hong Kong in the process even in the absence of a monopoly throttlehold on Taiwan-Mainland travel. Finally, Hong Kong's carriers continue to build services to other new destinations in countries like India and Russia, which in the medium to long term will more than compensate for any short term decline in Taiwan-Hong Kong business. The potential exists for Taipei to build strong air cargo business, but this is currently being quite tightly restrained by Mainland officials, with Taiwan's

aspiration to build a transit hub role being firmly blocked. It is unclear how long this will continue.

- The introduction of **high speed rail services has the potential to be far more disruptive**. At present, Mainland transport planners do not believe the ambitious national high speed rail network will in any way dilute pressure to build and grow the air infrastructure. It is possible they are wrong, in which case China is in the process of constructing a massive oversupply of airport capacity, and airports like Shanghai and Guangzhou might respond by building international hubbing services to compensate for a shortfall in domestic aviation activity. This would intensify head-to-head competition with Hong Kong as the region's leading hub for inter-continental passenger and cargo services. Even if planners are right, there seems little doubt that the introduction of high speed rail services will quite dramatically alter patterns of air travel in the Mainland, reducing demand in some hubs, and augmenting it in others. In this context many new hubs are likely to emerge which are at present not significant. Hong Kong's carriers, and its air services negotiators, will need to be keenly responsive to this fast-changing demand pattern.
- **Hong Kong appears still to be unattractive as a hub for Low Cost Carriers (LCCs)**, though in the past few years several small LCCs have started operations. Though there have been calls for changes in Government policy to provide inducements for LCC (and indeed Executive Jet) operations, it appears there are four other strong reasons for limited LCC development: 1) the fragmented nature of Asia's air space, which limits the flexibility that in the US and Europe underpins LCC competitiveness; 2) LCC reliance on a single passenger revenue stream in competition with legacy carriers that benefit from income streams from both cargo and passengers; 3) landing fee arrangements that are perceived to favour large aircraft, 4) limited access to/from Mainland destinations, and inflexibility on frequent addition and subtraction of routes and frequencies in response to seasonal market demands – factors which are likely to be pivotal to the long term success of Asian LCCs, whether operating from Hong Kong or (for example) Shenzhen and 5) the challenge of competing against two of Asia's most competitively aggressive and astute "home carriers".

- On balance, despite these challenges, it appears probable that **Hong Kong will continue to see strong demand growth** in the coming decade, in particular if it remains successful in building Hong Kong as a regional headquarter hub – a key driver for aviation activity.
- This suggests that **the single most significant determinant of Hong Kong’s competitive future as an aviation services hub will be the Government’s ability to build capacity** to accommodate this demand. This means winning public support not just for a third and fourth runway, but intensified multimodal interconnectivity with Shenzhen airport and also with the Western PRD via the Macau-Zhuhai bridge.
- **Collaboration with neighbouring airports** (such as Shenzhen and Macau) will not address Hong Kong’s runway capacity issue. Suggestions that collaborative and complementary development between Hong Kong and other PRD airports (Macau and Shenzhen are most often mentioned) can absorb future demand and pre-empt the need for new runways have not been validated in our research. A detailed examination of the inter-relationships between London’s five airports shows **negligible evidence of collaborative development**, with each of the five airports performing contrasted roles that are interestingly similar to the different roles being performed across the PRD’s five airports. A global “scan” to detect any single example of collaborative development has so far drawn a blank, though a more rigorous examination of this issue would be valuable.
- A further important determinant will be the administration’s success or failure in **collaborating with PRD counterparts** to improve air traffic management, facilitating more efficient use of regional air space, and augmenting Hong Kong’s hourly take-off and landing capacity. Expedited introduction of new air traffic management computer systems will be important, as will be joint training of air traffic controllers, and specific remedies to challenges arising from Mainland use of metric measures alongside Hong Kong’s use of imperial measures.
- Since on balance it appears likely that the Government will face significant challenges in winning public approval for additional runway capacity, the **most likely scenario for Hong Kong’s aviation hub going forward is sub-**

optimal. Overall demand growth is likely to be strong; Mainland authorities will remain committed to supporting the hub; PRD competitors are unlikely to improve to the extent that they are able to undermine the hub. But in the absence of an ability fully to accommodate fast-rising demand, Hong Kong appears set to “gift away” much future passenger growth to Shenzhen and Guangzhou. This will lift the critical mass of air services to these hubs, strengthen their local clusters of aviation-related skills and services, and significantly erode Hong Kong’s current competitive advantages. **Since it is possible that HKIA may be capacity-constrained as early as 2015, this erosion could begin sooner, and be speedier, than currently anticipated.**