InterVISTAS
AVIATION TRANSPORTATION TOURISM

TURKISH AVIATION ACADEMY

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Airline Business and Financial Planning

Istanbul Technical University

Air Transportation Management, M.Sc. Program

Aviation Economics and Financial Analysis

Module 8

21 November 2013

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Airlines are capital intensive, small margin and high risk business susceptible to significant environmental risks and uncertainties

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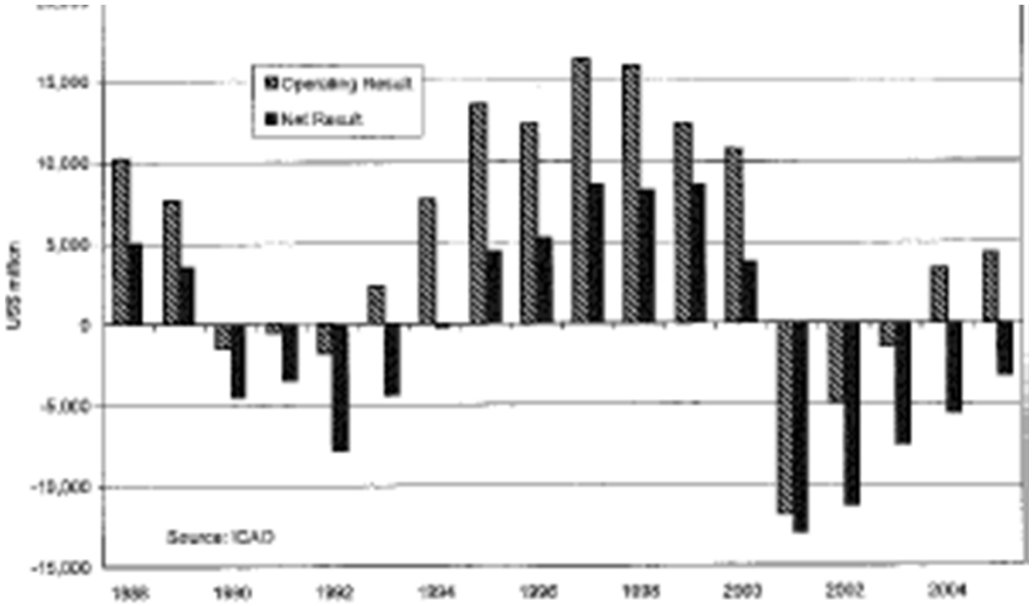
- Since the start of the first commercial service airlines lost
- Results generally follow fluctuations in economy, several factors including bias
- Supply exceeding demand, subsidisation of state owned carriers, prestige driven investments are among additional factors causing bias
- Recent years airlines in US and Europe generally improved scrutiny of fleet orders
- There are no shortage of entrepreneurs with readiness to invest in aviation – regardless of risks and expected returns compared to other industries



Cumulative net losses of scheduled airlines 1990-93 was $ 20.3 Billion

1995 – 2000 total profits were $ 40 billion

Overview

Cumulative net losses of scheduled airlines 1990-93 was $ 20.3 Billion

World Economic growth from 94 to 2000, reflected in improvements in airline profitability, 1995 – 2000 total profits were $ 40 billion

Since the end of the early 1990's recession airlines balance sheet strengthened allowing fleet modernisation with debt/equity ratio improving from 2.9 at the beginning of 90's to 2.4 in mid 2000's

Cost of Jet fuel jumped from 40 cent to 75 cent and more in 2000's proportion of fuel cost increased from 12 % to 30% of total airline operating expenses

During 2004 jet fuel increased to high of 157 cents per barrel

Recession in world economy post 2008 had detrimental effect on profitability

Major airlines are making less than the price of a sandwich from each passenger they carry flagship carriers were making $4 profit a head.

Overall the 241 IATA members made $12.7 billion profit last year.

In 2006 oil was trading at $82 a barrel and global economies were growing at 4pc.
Last year carriers achieved modest profitability despite oil averaging $130 a barrel and growth running at 2.1pc.

Overview

Airline financial results are sensitive to small changes in revenues or costs due high gearing ratios.

Financial gearing is expected to decrease, as more assists are financed by operating leases rather than the debt.

Airlines also have high operational gearing due fixed nature of operating expenses and relatively small margins on sales, resulting significant fluctuations in net margins

Breakeven load factor is important concept and shows airline recovering its costs, and this increased for airlines from 57% in 90's to 60%+ in 2000's.

Utilisation of the aircraft is critical for the results, airlines typically design 10/11 hour for NB, and 12-14 hours per day for WB aircraft

Airlie Revenues and Costs

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Revenues

Scheduled Airline Revenues

Charter Revenues

Cargo Revenues

Mail Revenues

Ancillary Revenues

Baggage Revenues

Cash Costs

Fuel

Maintenance

Navigation

Airport Landing

Catering

Ground Handling

Flight Crew

Cabin Crew

Aircraft Ownership Costs

Owned Fleet (Depreciation)

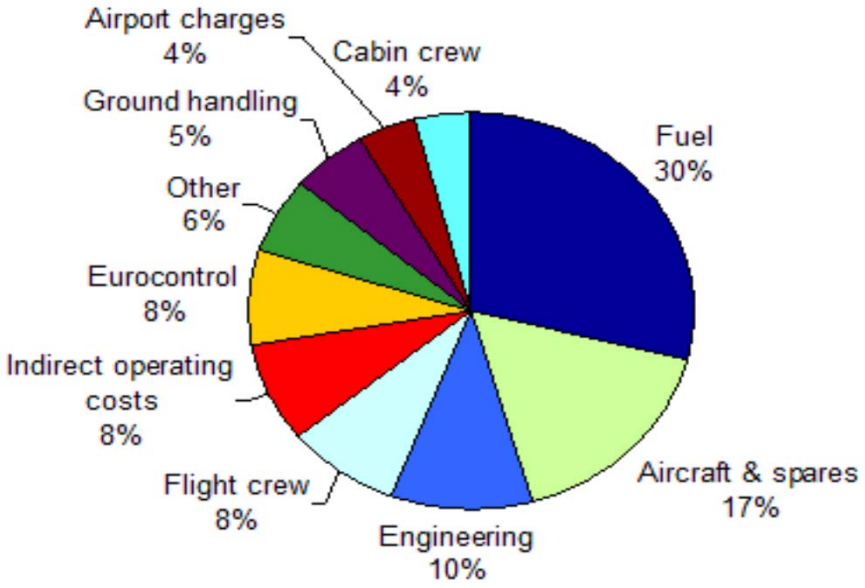
Leased Fleet

Insurance Costs

Overhead Costs

Staff Costs

Other overhead costs



Understanding Operational Costs

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B737

737-300						Manufacturer: Boeing								Class: Narrowbody
Average Block Hour Operating Cost	**Crew Cost**	**Fuel/ Oil**	**Aircraft Cost**	**Insur.**	**Taxes**	**Maintenance Direct**	**Maintenance Burden**	**Other**	**Total BH Cost**	**Monthly Aircraft Ownership Cost**	**Rentals**	**Deprec.**	**Amort. Of Cap. Lease**	**A/C Total /Month**
737-300	**$742**	**$2,305**	**$424**	**$13**	**$76**	**$520**	**$85**	**$0**	**$4,165**		**$57,691**	**$56,010**	**--**	**$113,701**
Southwest	$684	$2,308	$420	$14	$78	$441	$84	$0	$4,030		$55,050	$58,702	--	$113,752
US Airways	$1,419	$2,278	$474	$1	$46	$1,439	$101	--	$5,758		$84,569	$28,618	--	$113,187

Aircraft Operational Statistics	**Aircraft In Fleet**	**Stage Length**	**Seats/ Dept.**	**Gal. Of Fuel/HR**	**Average Aircraft Operations Per Day: Depts.**	**Block Hrs.**	**RPMs**	**ASMs**	**Load Factor**	**Aircraft Operating Cost/ASM (cents)**	**Crew**	**Aircraft Cost**	**A/C Total Maintenance**	**A/C Total Per ASM**
737-300	**183**	**533**	**137**	**748**	**5.6**	**9.0**	**317,930**	**410,778**	**77.4%**		**1.6**	**0.9**	**1.3**	**9.1**
Southwest	167	528	137	747	5.8	9.1	323,165	418,691	77.2%		1.5	0.9	1.1	8.7
US Airways	16	595	131	757	4.2	7.9	264,648	330,238	80.1%		3.4	1.1	3.7	13.7

A320

A320						Manufacturer: Airbus								Class: Narrowbody
Average Block Hour Operating Cost	**Crew Cost**	**Fuel/ Oil**	**Aircraft Cost**	**Insur.**	**Taxes**	**Maintenance Direct**	**Maintenance Burden**	**Other**	**Total BH Cost**	**Monthly Aircraft Ownership Cost**	**Rentals**	**Deprec.**	**Amort. Of Cap. Lease**	**A/C Total /Month**
A320	**$507**	**$2,458**	**$527**	**$6**	**$67**	**$594**	**$161**	**$11**	**$4,331**		**$117,023**	**$58,943**	**--**	**$175,966**
JetBlue	$585	$2,419	$396	$6	$73	$379	$131	$11	$3,999		$53,329	$93,777	--	$147,105
United	$531	$2,306	$489	$4	$81	$891	$233	$6	$4,541		$89,721	$59,925	--	$149,646
US Airways	$437	$2,396	$733	$4	$67	$813	$101	--	$4,551		$200,869	$25,592	--	$226,460
Delta	$388	$2,373	$234	$12	--	$485	$271	$11	$3,775		$15,883	$53,103	--	$68,986
Virgin America	$353	$2,362	$1,048	--	$160	$351	--	$47	$4,321		$383,090	$8,843	--	$391,932
Frontier	$897	$5,278	$1,432	$12	--	$707	$84	$10	$8,419		$499,538	$54,116	--	$553,654

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Airline Business and Financial Planning



Context for Airline Business and Financial Planning

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Profitability forecast and development of a bankable business plan is critical for airline to raise finance at competitive rates

Airline Business and Financial Planning is prompted by multiple reasons

- **Financial implications of strategic plans**
- **Fleet Planning and Renewal**
  - **Governments not willing to provide funds for flag carriers with operating losses and require detailed business plan**
  - **Current conditions makes fleet financing difficult for many airlines . Airlines cant raise finance from local banks and they need to access capital markets**
  - **Start up carriers below profitability targets are not funded by owners/holding companies**
  - **Incorrect fleet decisions increased competitor activity, and unrealistic growth rates can cause stakeholders to review risk exposure and require detailed business plan**

Airline Financial Plan is mostly Dictated by Airline Business plan

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Profit forecast, business risks influence airline financial plan

Execution effectiveness and financial results

Market and competitive changes, strategic options (mainline, regional, cargo, MRO etc)

Changes in route structure and alignment of fleet with changes in strategy and network

Alignment and improvement of commercial and operational activities

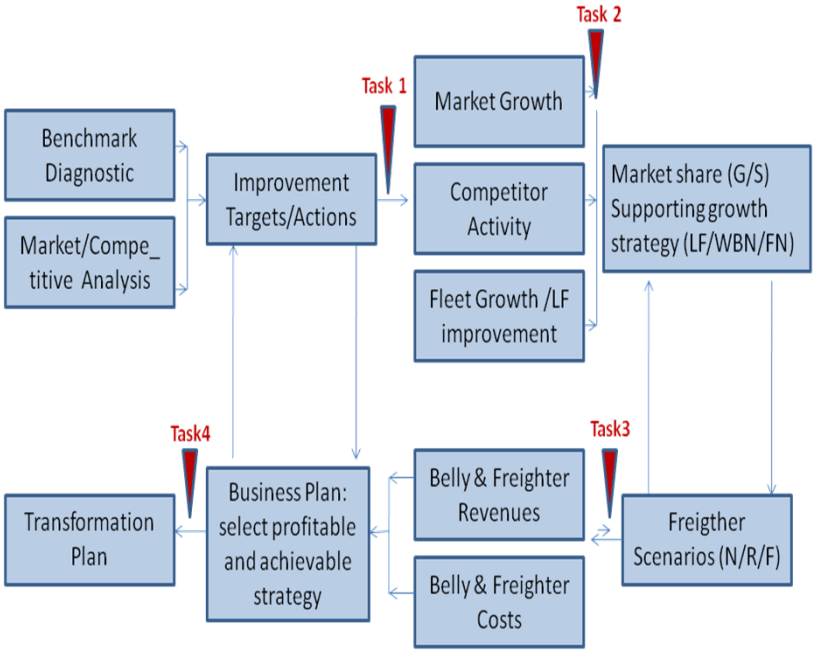
Forecast of marketshare and route profitability based on variable contribution

Business plan: revenue, cost, profitability forecast

Assessment of risks; market, competition, turnaround delivery, fuel costs etc.

Aircraft sourcing, availability, vintage , buy versus lease

Financial analysis sources and application of funds



Breadth of depth of analysis, accurate assumptions, implementable strategies and improvement actions are key for the quality of the business plan

Benchmarking provides insights to execution effectiveness and also effectiveness and results of the current strategy

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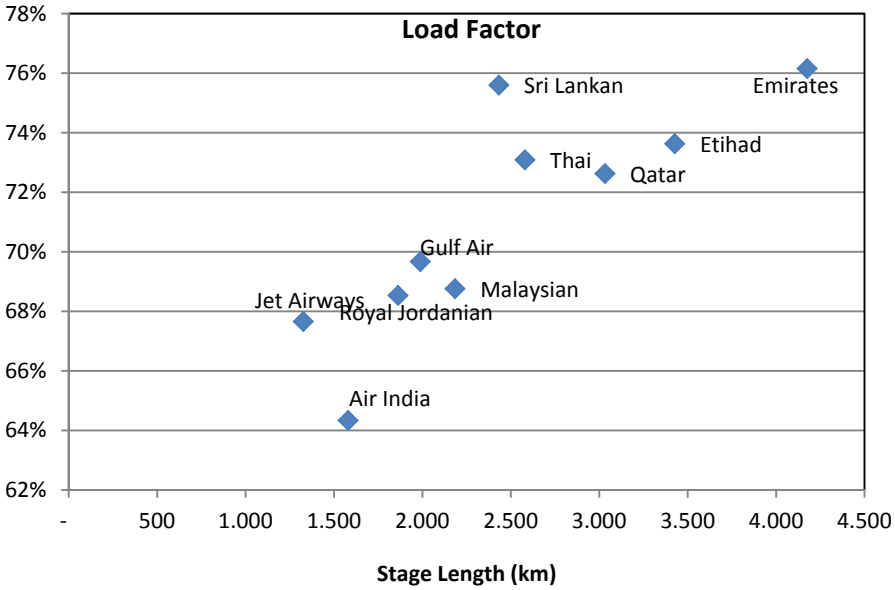
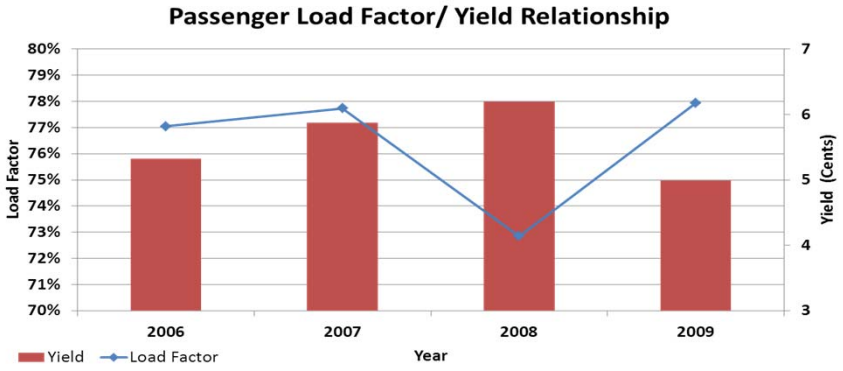
- Compare commercial performance with peers and competitors
- Passenger Numbers, Capacity (ASK), compare airline's growth with its peers and competitors
- Revenues,
  - RASK , Load Factor, Yield,
  - Cargo Revenue and Ancillary Revenues
- Costs, CASK,
  - Fuel, Maintenance, Ground, Crew et
- The productivity benchmarking
  - number of employees per passenger,
  - employees per aircraft, employees per ASK.
  - Cockpit cabin crew productivity
- **Follow up gaps with further detailed diagnostic to identify improvement areas**





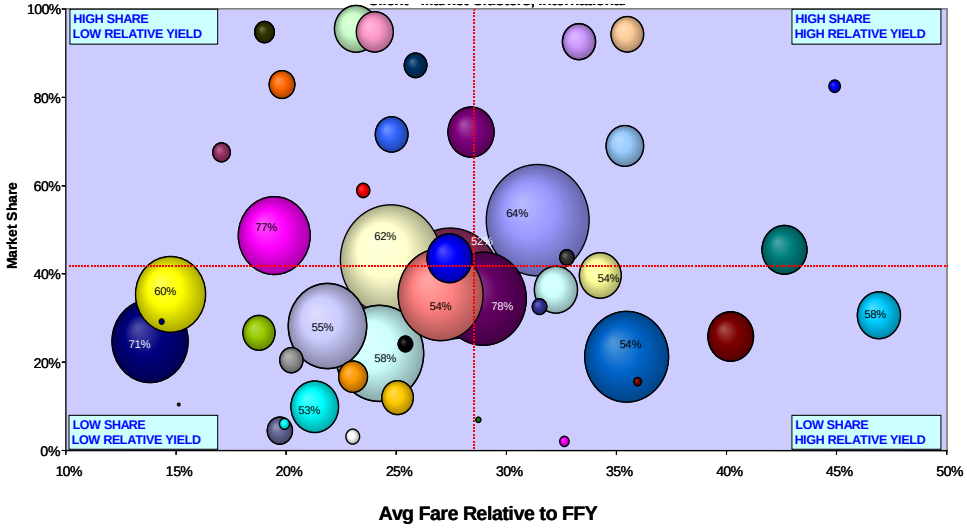
Note: Each year as indicated represents a fiscal year.

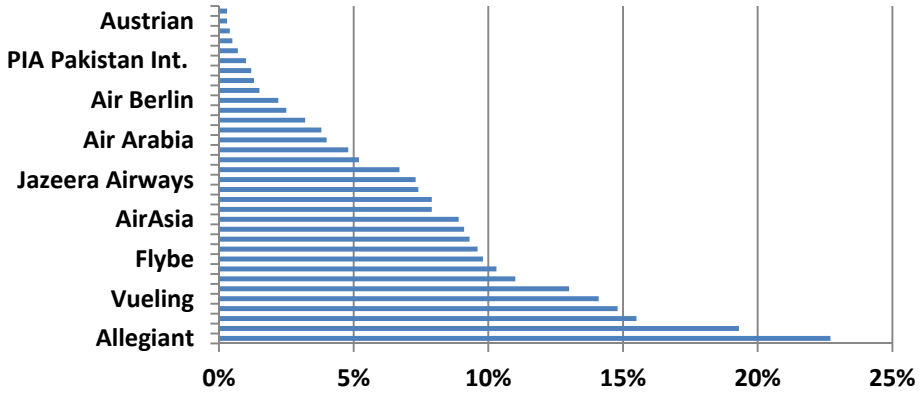
Poor revenue performance often driven by

markets, capacity, product quality, fleet utilisation, commercial strategy, and management expertise

- **Review functions contributing to revenues**
- **Network revenue performance**
  - **Marketshare by revenue quality**
  - **Low share, High yield: Improve LF, better RM**
  - **High Share Low Yield': Improve RM**
  - **Low share low Yield: Restructure**
  - **Poor optimisation 2% - 10%**
  - **Reasons for poor route performance**
  - **Route restructuring costs -**
- **Pricing and RM improvement**
  - **Lack of management expertise, tools**
  - **Proactive, Strategic, Performance focused**
  - **Opportunity 2% - 5 %**
- **Ancillary Revenues**

Full service 5% **Low cost/Regional 20%**





Airlines with high costs route structure, typically driven by,

wrong fleet mix, low fleet utilisation, and low staff productivity, high MRO, crew, ground handling, distribution costs and overheads

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CASK benchmarking can highlight opportunities to reduce cost and improve productivity

Maintenance costs (9 % costs)

- Benchmark Maintenance costs
- Hangar/Engine Component
- TAT/costs
- Materials/Supply Chain
- outsourced contracts

Pilot/Cabin crew costs (3-10% roster)

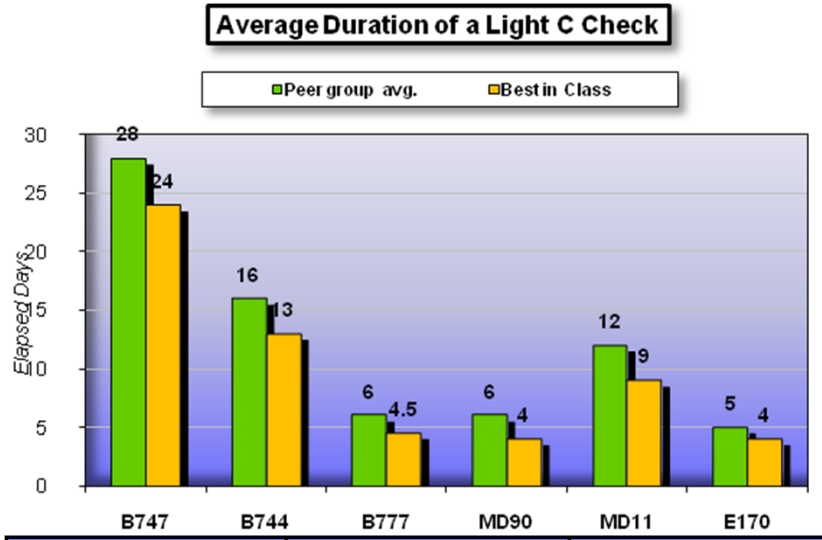
- Improve productive hours
- Basings/Reserves

Ground handling costs (5% of cost base)

- Turn times/Resource optimisation
- Contract improvements

Distribution (8% of costs)

- Direct distribution/lower cost channels
- GDS contracts



Item	Example Client	Industry Practice
Fixed Rate – Routine Labor	C8 - $800,000	C8 - $635,000
T&M Man Hour Rate	$60 / manhour - Hangar $80 / manhour – Engineer	$50-50 /manhour – Technician $70-80 /manhour - Engineer
Material Premium	New parts – CLP plus 13%, cap of $3K plus $150 admin fee Consumables extra	New parts – CLP plus 10%, cap of $2K, No admin fee Consumables included up to $100 per task
Subcontracted Services	Invoice plus 15% plus admin fee of $150	Invoice plus 8%, no admin fee
Turn-around-Time (TAT)	60Days	42 Days
TAT Penalty	None	$4000-$5000 per day
Warranties	12 months or 4,300 flights hours, whichever 1st.	12 months or 3,000 flights hours, whichever 1st.
Overall Value	***Mediocre***	

Review of markets growth, market share, competitors, fares provides insights into routes with opportunities and weaknesses

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Airlines position in markets

- ➢Year on year marketshare growth
- ➢Marketshare growth relative to market growth
- ➢Shrinking share in growing markets
- ➢Marketshare of high yield markets
- ➢Year on year fare changes
- ➢Gain or protect marketshare at the expense of reducing fares/yield

City Pair	Total O&D Pax		SLA O&D Pax		SLA market share		Market growth			Average fares in US$			
	2009	2010	2009	2010	2009	2010	Total O&D market	SLA	SLA share growth (in pct. points)	Total market 2009	SLA 2009	Total market 2010	SLA 2010
BKK - LHR	698,113	681,219	1,974	4,253	0.3%	0.6%	-2.4%	115.5%	0.3%	455	363	461	341
DXB - SIN	239,709	207,957	138	698	0.1%	0.3%	-13.2%	405.8%	0.3%	644	403	699	312
RUH - TRV	111,638	105,054	11,557	11,093	10.4%	10.6%	-5.9%	-4.0%	0.2%	188	209	178	205
BKK - MCT	114,139	100,873	4	10	0.0%	0.0%	-11.6%	150.0%	0.0%	307	823	305	353
BKK - KWI	100,953	100,095	937	1,197	0.9%	1.2%	-0.8%	27.7%	0.3%	294	368	263	305
KUL - KWI	44,417	43,192	1,506	5,942	3.4%	13.8%	-2.8%	294.6%	10.4%	373	295	344	257
DMM - KUL	28,092	27,645	1,256	4,984	4.5%	18.0%	-1.6%	296.8%	13.6%	426	384	342	315
RUH - SIN	24,516	24,104	69	77	0.3%	0.3%	-1.7%	11.6%	0.0%	782	528	639	690
LHR - MLE	75,137	58,301	49,300	42,521	65.6%	72.9%	-22.4%	-13.8%	7.3%	528	468	465	385
Total	**1,436,714**	**1,348,440**	**66,741**	**70,775**	**4.6%**	**5.2%**	**-6.1%**	**6.0%**	**0.6%**	**449**	**413**	**446**	**337**

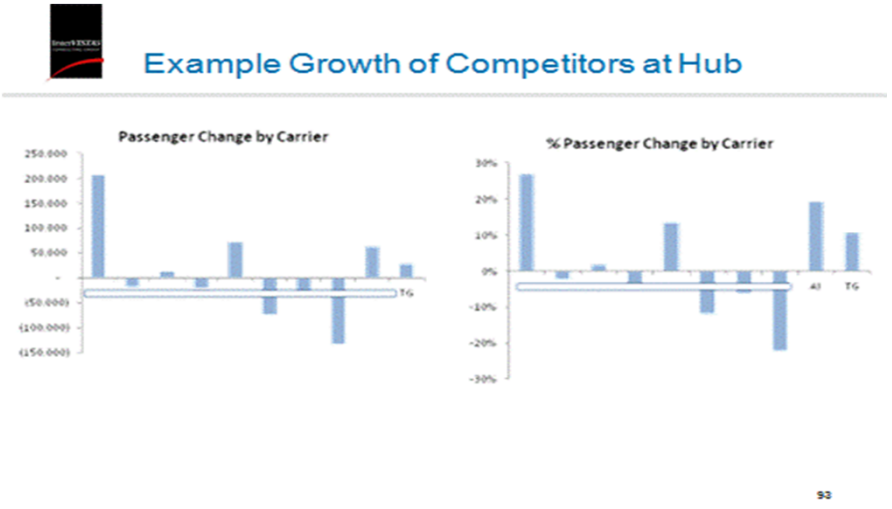
Capacity growth, competitor activities markets with share gap

Competitors gaining share at own hub

What are the competitive opportunities and threats from other airline

Market forecasting, focus on growth markets, yield and circuitry

Development of network and route scenarios



Network design, route development and fleet alignment is key to improve airline profitability

- Test different scenarios and business models and evaluate respective differences in variable contribution towards selection of the best model.
- Align routes and frequencies markets with growth, and yield advantages
- The route structure that maximises marketshare, and variable contribution improving competitiveness is selected
- Identify key changes to Long Haul, Medium Haul, Regional and Domestic routes
- Improve 6th freedom traffic and revenues
- Identify key changes for **better use of** code shares, alliances and joint ventures
- Changes in the fleet plan is driven by the optimal route structure – iterative process

Example: Route Deployment and Service Growth Plan

Total Aircraft		4	6	7	8	10
Route	City Pair	2012	2013	2014	2015	2016
BLR-GBG	Bangalore-Gulbarga	7	10	10	14	14
BLR-MAA	Ban					14
BLR-SMG	Ban					14
CJB-COK	Coi					14
GBG-VTZ	Gul					2
SMG-CJB	Shi					4
SMG-COK	Shi					5
GBG-HYD	Gul					10
GBG-MAA	Gul					10
HYD-MAA	Hyd					14
HYD-SMG	Hyd					10
MAA-SMG	Che					10
CJB-MAA	Coimbatore-Chennai	-	7	14	14	14
CJB-BLR	Coimbatore-Bangalore	7	7	7	14	14

example for illustration

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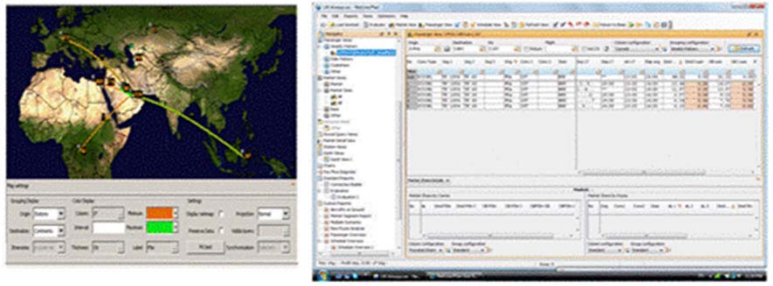
Source: InterVISTAS Consulting Analysis,

Example Use of Optimisation Tolls in Evaluating Business Models and Route Strategy



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Short term financial improvement: Route Profitability

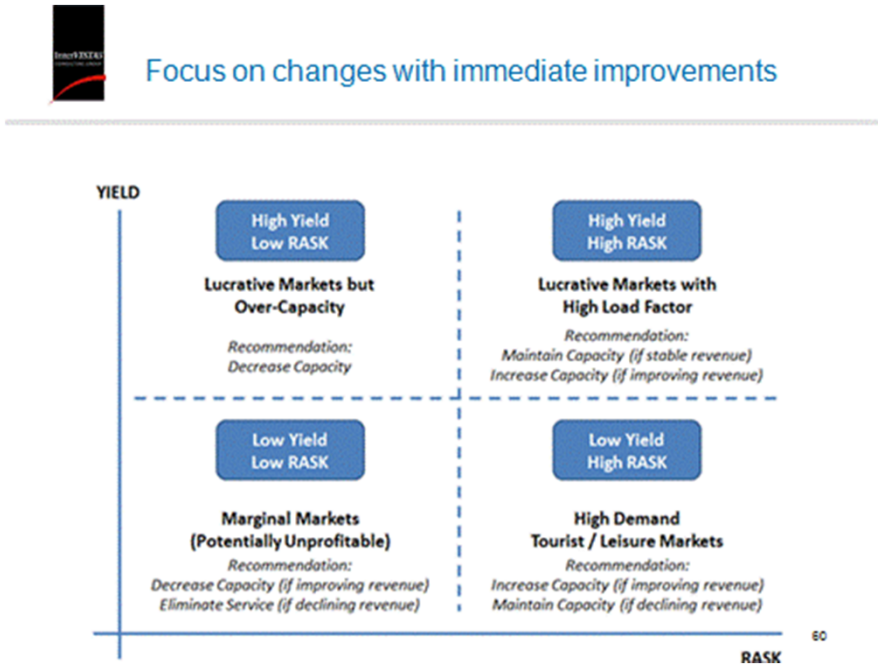
Focus on current network and improvements that can be feasibly implemented subject to airport and other operational constraints of the airline.

Financial performance of the network can be evaluated and routes can be classified according to the yield and Revenue per Available Seat Kilometre (RASK) achieved on routes.

Focus will be on improving overall RASK, increase in business class routes and reduce volatility of passenger throughputs.

Quick-hit improvements to the schedule are identified. This can include changes to departure times or introduction of new flights

Operational constraints, such as overnight maintenance downtime requirements, crewing restrictions, slot and bilateral restrictions, etc.



Network design uses candidate aircraft type and use of accurate aircraft data is essential

aircraft purchase, lease and operational costs

- **Use of accurate operational and ownership costs**
  - Aircraft selection list prices
  - Optimised scenario actual price
  - Actual MRO, Fuel, Crew costs
  - Use if actual block hours
- **Aircraft replacement – fuel, maintenance costs**
- **Many airlines delay fleet replacement decisions with impact on financial performance**
- **Lack of financial resources may force airlines to use vintage aircraft, or aircraft with high operational costs**
- **Leverage geographic advantage for NB use reduce commercial risk**
- **Right NB./WB ratio to for hub operations**
- **Fleet commonality for reduced costs**
- **Buy versus lease calculations**
- **Actual lease and purchase prices and bank rates**

Block Hours by Aircraft Type

	FY2012	FY2013	FY2014	FY2015	FY2016
320	22,677	35,391	35,740	36,286	38,878
332	29,261	38,809	53,221	62,553	68,125
343	29,629	24,734	14,389	7,143	2,590
	81,567	98,934	103,350	105,983	109,593

Average Utilization

	FY2012	FY2013	FY2014	FY2015	FY2016
320	10.8	11.4	10.9	11.0	11.8
332	14.3	13.7	14.3	13.7	14.3
343	13.5	12.9	12.1	13.6	14.2
	12.9	12.6	12.6	12.7	13.3

ATK by Aircraft Type

	FY2012	FY2013	FY2014	FY2015	FY2016
320	236,455,883	395,899,079	399,489,366	405,245,130	434,944,089
332	807,967,280	1,091,350,985	1,552,586,802	1,866,583,715	2,051,262,199
343	1,022,549,024	881,844,737	527,312,858	265,463,424	96,647,409
	2,066,972,187	2,369,094,801	2,479,389,026	2,537,292,269	2,582,853,697

		A 320				
Operating Cost Category	Measurement	FY2012	FY2013	FY2014	FY2015	FY2016
FUEL & OIL	Per Block Hour	1,999	2,039	2,080	2,122	2,164
LANDING	Per Departures	439	448	457	466	475
HANDLING	Per Departures	900	918	936	955	974
OVERFLYING	Per Departures	303	309	316	322	328
AIRCRAFT MAINT	Per Block Hour	753	791	830	872	915
INFLIGHT CATERING	Per Pax	8.0	8.1	8.3	8.5	8.6
AIRCRAFT RELATED	% of Block Hours, Cost per Month	3,022,321	4,064,446	4,288,890	4,458,607	4,489,891
CREW LAYOVER	Per Flight	1,043	1,063	1,085	1,106	1,129
AREA/OTHER	% of ATK	6,879	7,885	8,252	8,444	8,596
CORPORATE OVERHEADS	% of ATK	2,414	2,767	2,896	2,964	3,017

		A 330				
		FY2012	FY2013	FY2014	FY2015	FY2016
FUEL & OIL	Per Block Hour	4,371	4,459	4,548	4,639	4,732
LANDING	Per Departures	1,229	1,253	1,278	1,304	1,330
HANDLING	Per Departures	2,778	2,833	2,890	2,948	3,006
OVERFLYING	Per Departures	1,609	1,642	1,674	1,708	1,742
AIRCRAFT MAINT	Per Block Hour	1,401	1,298	1,193	1,205	1,265
INFLIGHT CATERING	Per Pax	10.7	10.9	11.1	11.3	11.6
AIRCRAFT RELATED	% of Block Hours, Cost per Month	4,665,661	6,577,686	9,032,459	11,269,780	12,216,526
CREW LAYOVER	Per Flight	3,168	3,232	3,296	3,362	3,429
AREA/OTHER	% of ATK	6,879	7,885	8,252	8,444	8,596
CORPORATE OVERHEADS	% of ATK	2,414	2,767	2,896	2,964	3,017

		A 340				
		FY2012	FY2013	FY2014	FY2015	FY2016
FUEL & OIL	Per Block Hour	5,313	5,419	5,528	5,638	5,751
LANDING	Per Departures	1,657	1,690	1,724	1,758	1,793
HANDLING	Per Departures	3,523	3,593	3,665	3,738	3,813
OVERFLYING	Per Departures	2,624	2,676	2,730	2,784	2,840
AIRCRAFT MAINT	Per Block Hour	1,401	1,298	1,193	1,205	1,265
INFLIGHT CATERING	Per Pax	13.6	13.8	14.1	14.4	14.7
AIRCRAFT RELATED	% of Block Hours, Cost per Month	5,013,844	4,455,852	2,863,950	1,352,374	939,733
CREW LAYOVER	Per Flight	3,593	3,664	3,738	3,812	3,889
AREA/OTHER	% of ATK	6,879	7,885	8,252	8,444	8,596
CORPORATE OVERHEADS	% of ATK	2,414	2,767	2,896	2,964	3,017

Buy versus Lease Considerations

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Once the aircraft type is determined fulfilment method requires further analysis. Key parameters to consider include

***Buy prices*, this should be the best purchasing rate obtained from the sellers. For example an aircraft listed as 200 million could be reduced to 80 million depending on supply and demand for different aircraft**

***Dry Lease rate* – this should include best dry lease rate that can be obtained from the industry. Market demand for particular aircraft type and financial strength of the leasing company becomes important in determination**

Operational costs – these include additional operational costs of a dry leased aircraft such as cockpit and cabin crew.

Borrowing rate – if the airline is borrowing to purchase aircraft this must be the best rate that is obtained from the bank of lending institutions

Comparative analysis enables airline's to determine the most beneficial fulfilment option. An example is provided below

Best prices can be obtained thru running aircraft acquisition process.

Example Buy Versus Lease Comparison

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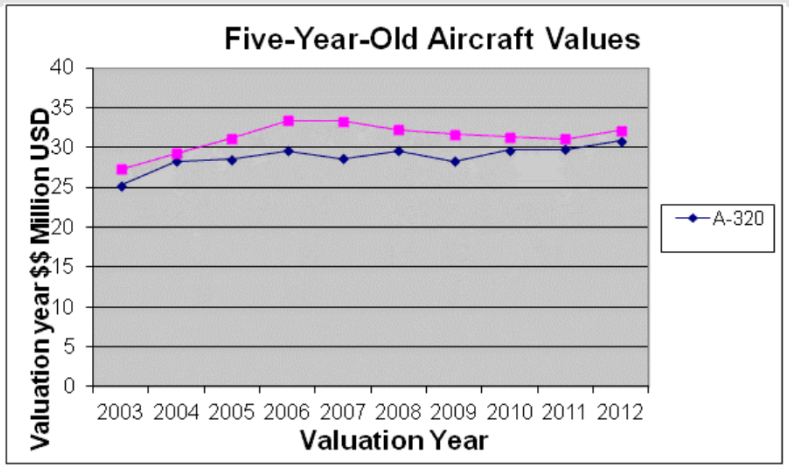
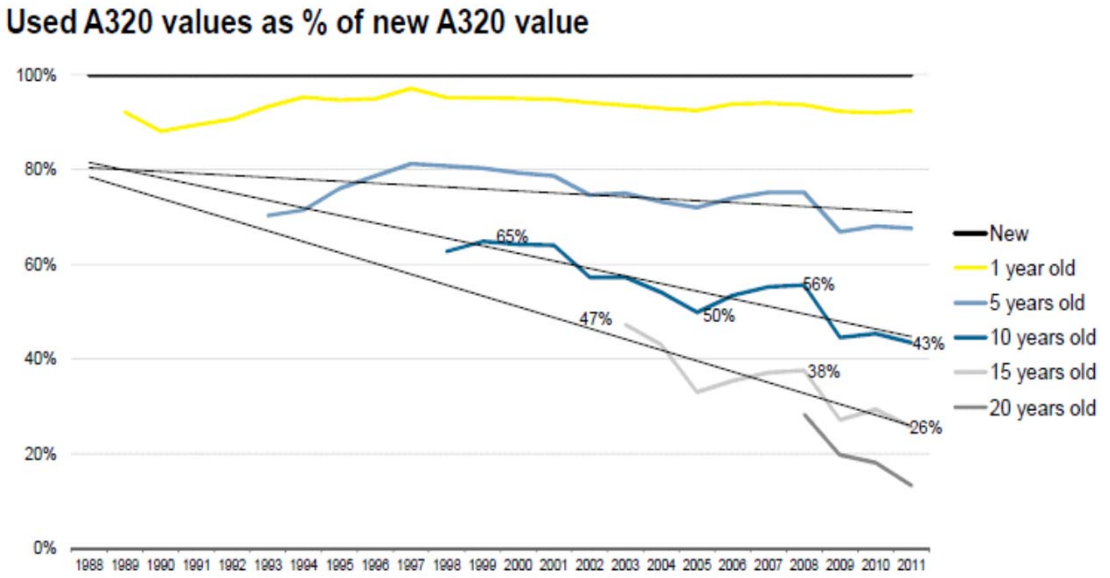
Option 1) Buy 2 Freighters @ $160M Total		Beginning of Year	End of Year			
			Year 1	Year 2		Year 20
Principal: $160 million	Principal Remaining	$ 160,000,000	$ 152,000,000	$144,000,000		$ -
Interest: 5%	Interest Paid		-$ 8,000,000	-$ 7,600,000		-$ 400,000
Principal payback: Straight Line, 20 years	Principal Paid		-$ 8,000,000	-$ 8,000,000		-$ 8,000,000
Maintenance / Crew: Extra	Insurance Costs		-$ 266,667	-$ 266,667		-$ 266,667
Insurance: Extra	Mace Costs		-$ 6,083,515	-$ 6,083,515		-$ 6,083,515
	Crew Costs		-$ 5,069,596	-$ 5,069,596		-$ 5,069,596
	Cash Outflow / Residual Value		-$ 27,419,777	-$ 27,019,777		-$ 19,819,777
	NPV of Cash Outflow (Day 1, Year 1)	-$357,217,586				
Option 2) Dry Lease @ $900,000/mo per Freighter		Beginning of Year	End of Year			
			Year 1	Year 2		Year 20
Monthly Lease Payment: $1.8M	Lease Payment		-$ 21,600,000	-$ 21,600,000		-$ 21,600,000
Maintenance / Crew: Extra	Insurance		$ -	$ -		$ -
Insurance: Included	Mtce Costs		-$ 6,083,515	-$ 6,083,515		-$ 6,083,515
	Crew Costs		-$ 5,069,596	-$ 5,069,596		-$ 5,069,596
	Cash Outflow	$ -	-$ 32,753,110	-$ 32,753,110		-$ 32,753,110
	NPV of Cash Outflow (Day 1, Year 1)	-$473,090,852				
Option 3) Wet Lease @ $900,000/mo per Freighter		Beginning of Year	End of Year			
			Year 1	Year 2		Year 20
Monthly Lease Payment: $1.8M	Lease Payment		-$ 21,600,000	-$ 21,600,000		-$ 21,600,000
Maintenance / Crew: Included	Insurance		$ -	$ -		$ -
Insurance: Included	Mtce Costs		$ -	$ -		$ -
	Crew Costs		$ -	$ -		$ -
	Cash Outflow	$ -	-$ 21,600,000	-$ 21,600,000		-$ 21,600,000
	NPV of Cash Outflow (Day 1, Year 1)	-$311,993,648				

Used aircraft lease rates

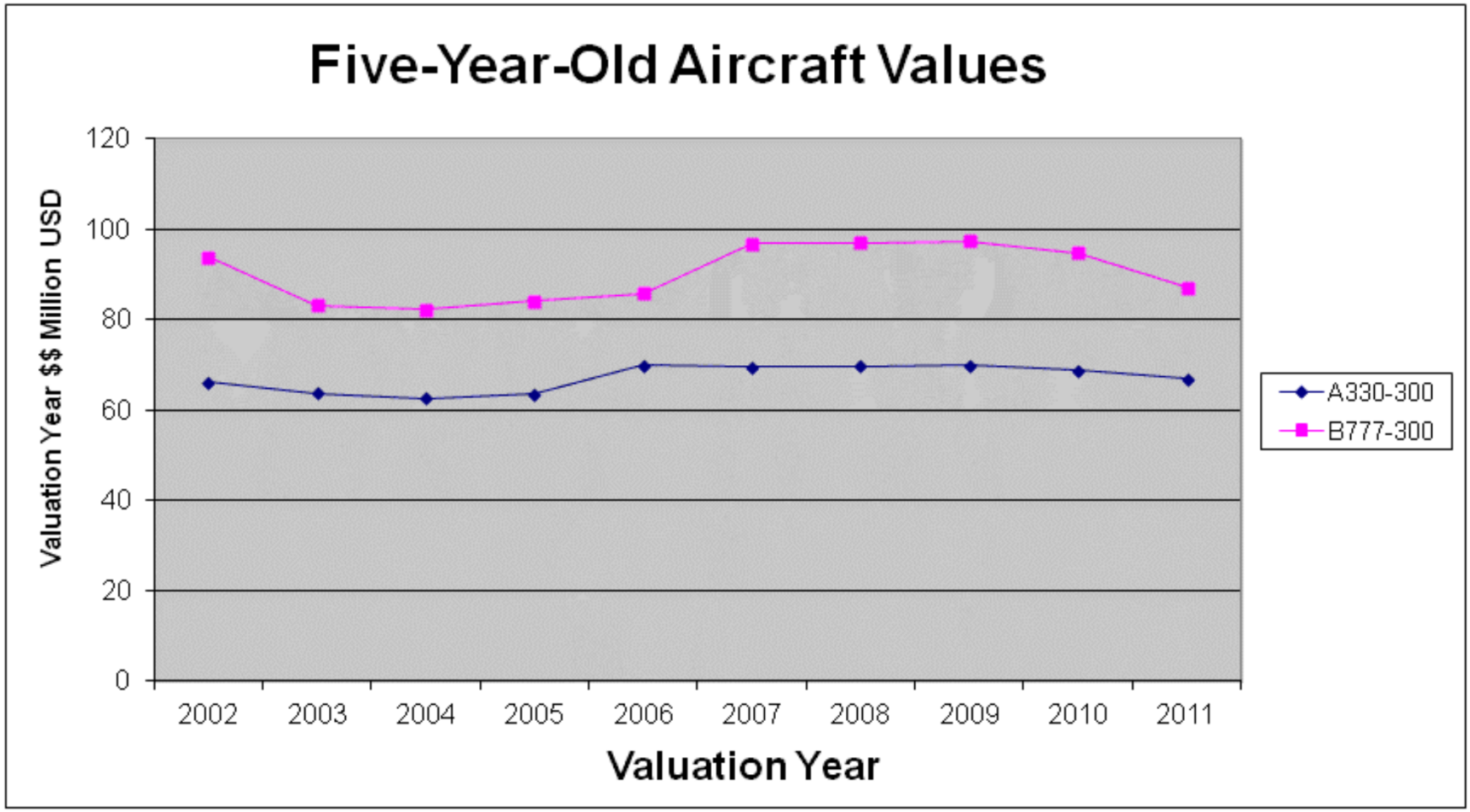
- **Lease rates are influenced by many factors**
- **Interest rates/ economic environment**
- **Lease Terms**
- **Lessor supply**
- **Lessee quality**





Used A320 Rates

Typical Narrow body Depreciation Rates

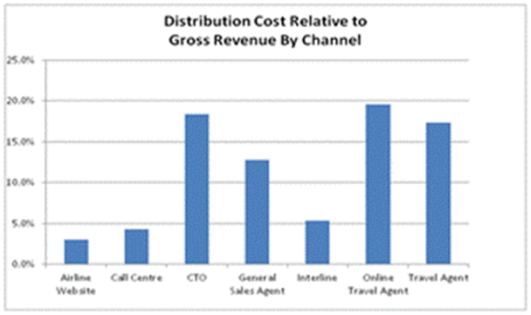


Vintage Wide Body Aircraft Rates

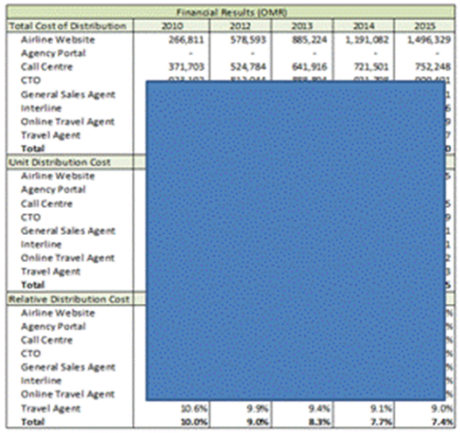
Alignment of commercial processes with business model changes for improved revenue

- Alignment of commercial processes with the new business model and route strategy.
- Key changes in the product strategy
- Critical changes in pricing strategy, fare matrix, pricing review for RASK increase
  - Pro-active pricing processes
  - Reactive pricing processes
- Improvements in revenue management
  - Diagnostic assessment
  - LF forecasting
  - Critical flight management
- Revenue planning and revenue delivery
- Pricing and revenue management performance measures
- Improvements in ancillary revenues
- Distribution benchmarking, segments, unit revenue, unit cost per channel, as is costs
- Changes in Distribution mix
  - -

Changes in distribution mix



Alignment of commercial activities – changes in distribution mix



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Alignment and improvement of airline operational activities

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Opportunities to align operations with the business model changes and reduce costs

Target CASK to align with target revenues

Review and improve direct and indirect cost

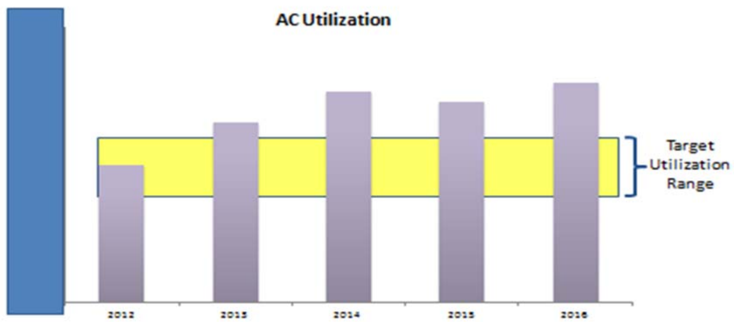
Determine initiatives for productivity improvement and unit cost reduction to meet target CASK

Organisational improvement

Productivity improvements

- **-Fleet (Utilisation),**
- **maintenance,**
- **crew,**
- **ground handling costs,**
- **overheads and other areas**

Operating Assumptions



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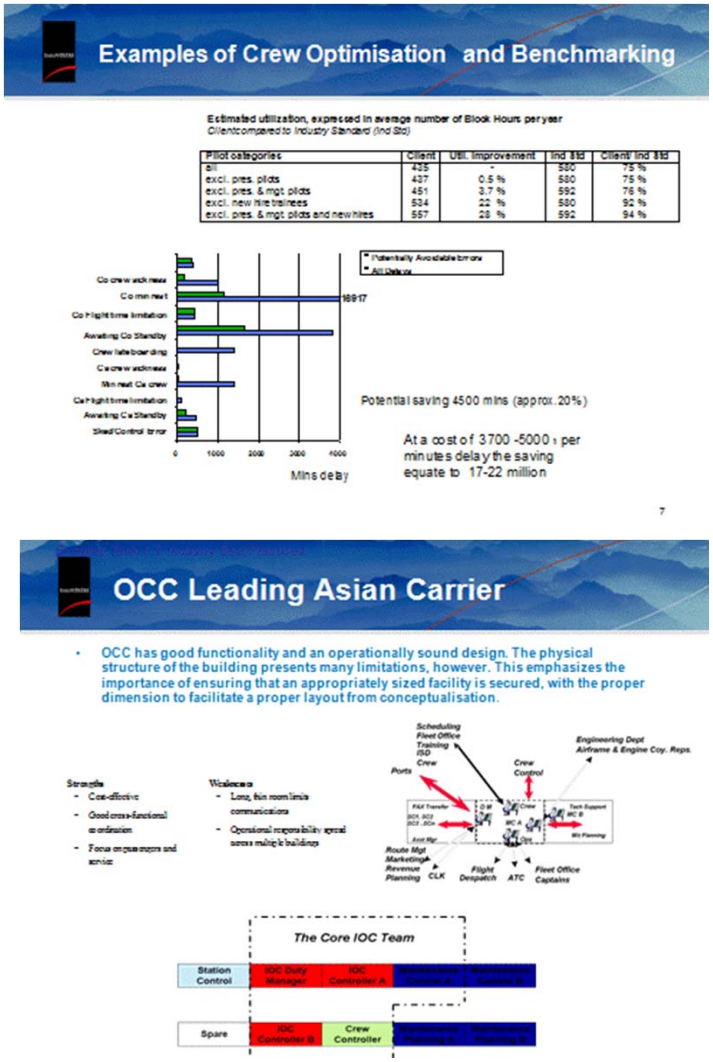
Example: Business Model

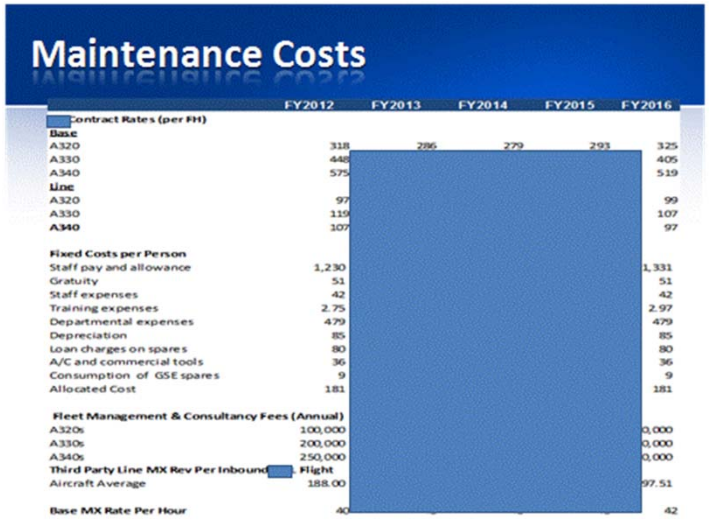
Operations cost reduction and productivity improvement: Crew and Operations Control

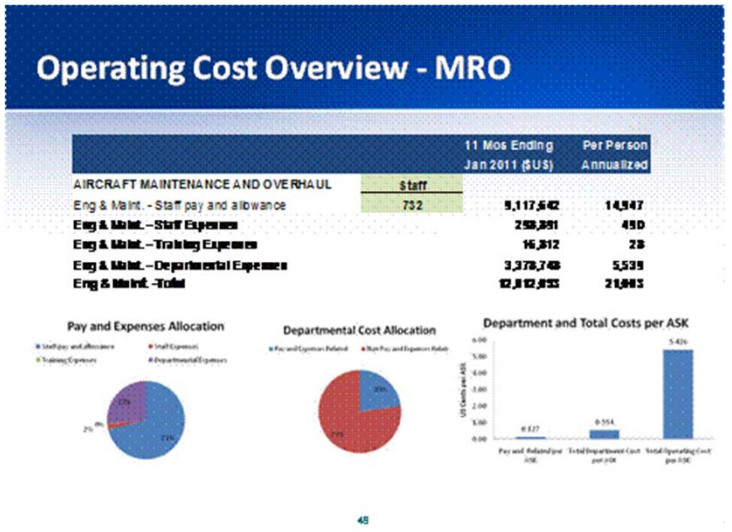
- Review crew assignment process and costs,
- Review flight operations identify improvement opportunities
- If needed, identify opportunities in improvements in crew productivity
- Identify changes in the crew manpower plan
- Operations control centre diagnostic
- Identify inefficiencies leading to suboptimal decision making
- Identify improvements in processes and improvements in co-location of IOC functions
- Provide recommendations that relate to organisation, systems and performance management that relate to
  - Flight Operations
  - Crew optimisation
  - Integrated Operations Control



Operational cost reduction and productivity improvement

- **Alignment of the operational activities support business model changes – MRO costs and productivity Improvement**
- **Benchmark MRO costs and productivity, operation, turnaround times, material costs and productivity**
- **Diagnostic of key MRO areas,**
  - **hangar,**
  - **line maintenance**
  - **Supply chain**
  - **Engineering and planning**
  - **Other processes**
- **Benchmarking of engine, OM, component contracts**
- **Restructure processes for productivity improvements at shops**
- **Opportunities for the growth of third party revenues**
- **Business Plan**





Air cargo market and competitor analysis and market size forecasting

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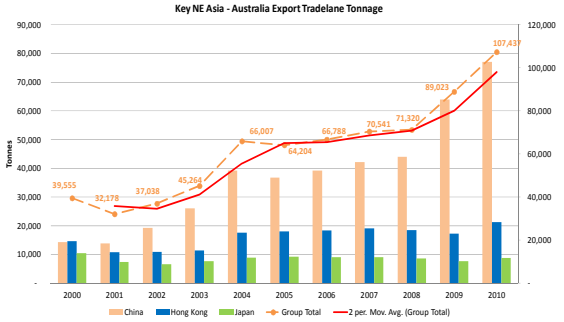
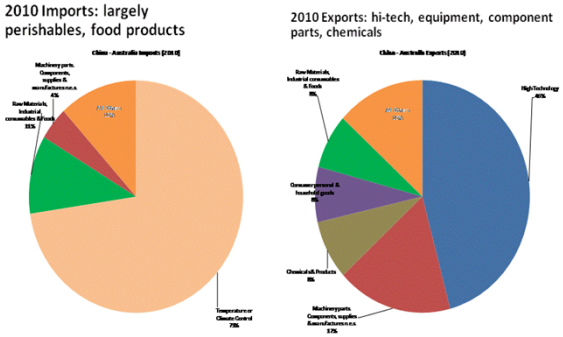
- ❖Compare market share and capacity share with competitors
- ❖Are there opportunities to improve route performance
- ❖Market forecasting to focus on best return markets
  - Air cargo trade lane analysis:
  - Conduct workshops with freight forwarders and customers
  - Feedback for improving markethsare with customers
- ❖In executing market analysis and forecasting work Inter*VISTAS* uses its proprietary data sources from industry research and regular contact with related associations
- ❖Cargo markets are particularly challenging due current economic conditions – with many freighters grounded

SAMPLE DELIVERABLES

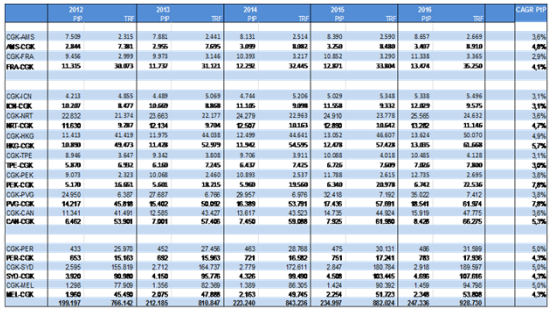
Example **Tradelane Analysis**
Per country and import/export direction



Example Commodity Analysis
Type of cargo



Example Market Forecasting
Route level



Forecast market share, and expected gain for profitable operation of freighters

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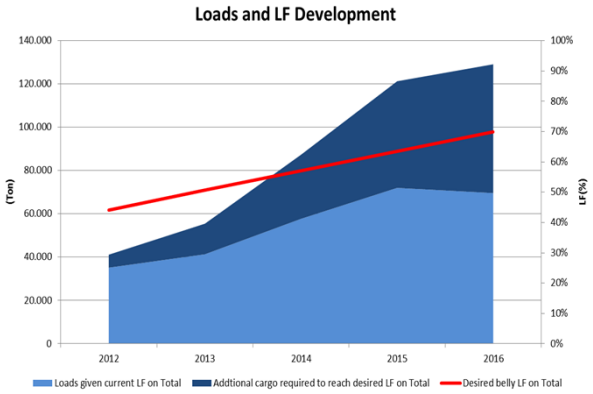
InterVISTAS provides proprietary tools for route level cargo marketshare forecasting

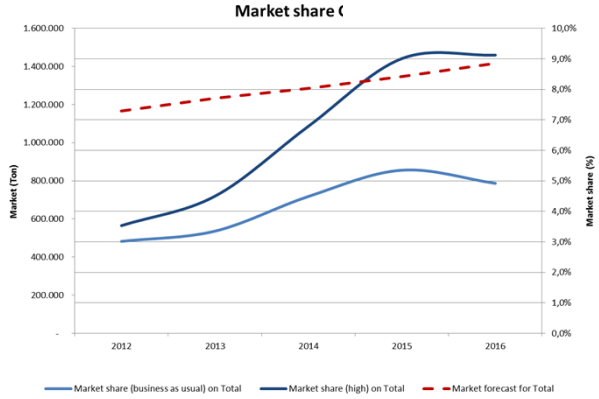
Determine expected load factor for each route, regions and system wide, considering future market growth (from the previous market forecasting task).

Analysis include following elements:

- **Future market sizes**
- **Market share growth based on current load factors**
- **Cargo capacity growth, driven by the growth of the passenger fleet**
- **Additional cargo capacity driven by freighters that may be committed to this route (capacity and frequency)**
- **Total capacity including competitors operating this route**

The routes will be prioritized according to best market share forecast and they will be used in developing scenarios for network design.





Analysis of air freight route and freighter scenarios for improving profitable operation of freighters and belly

- Scope to design/improve the route structure and freighter type/number / utilization maximizing route profitability. Analysis also drives the freighter performance improvement.
- Criteria will include weighted average, where weights include expertise and experience of Inter*VISTAS* team.
- Route scenarios will be subsequently tested for Freighter types that will be analyzed in the next task
- Significant growth in WB aircraft increasing availability of belly capacity
- Increasing fuel price causing intermodal shift towards maritime
- Warehouse development costs are significant .

Example:
Route Analysis and Market Share Capture Models

Market and Capacity Development

		2012	2013	2014	2015	2016
	Marke GK-pvg	31,337	34,453	36,933	39,610	42,434
De	GA C GK-pvg	4,260	4,380	6,588	8,760	8,784
	Competition Capac pvg	0	0	0	0	0

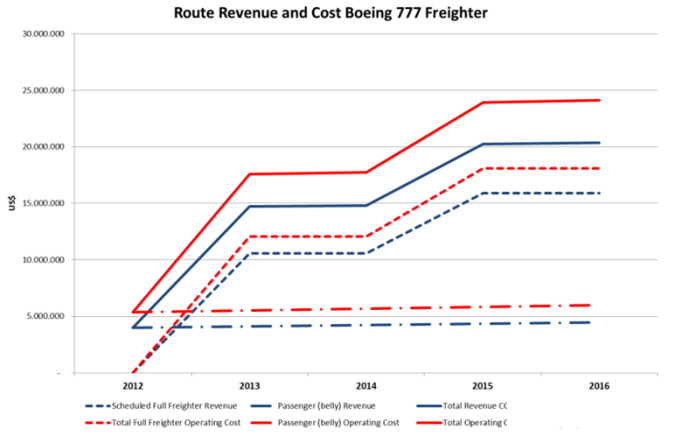
Growing LF in equal steps to desired LF

		2012	2013	2014	2015	2016
Current Loa 11%	Desired belly LF on CGK-pvg	37%	43%	49%	54%	60%
Desired Loa 60%	GA Capac	4,260	4,380	6,588	8,760	8,784
	Loads given current LF on CGK-pvg	1,338	1,376	2,070	2,752	2,760
	Addtional cargo re ch desired LF on CGK-pvg	244	501	1,130	2,003	2,510
	Addtional cargo required for 2 weekly F	-	-	-	4,732	4,732

Including Narrow Body Belly (yes/no): no		2012	2016
	GA Capacity on CGK-pvg	4,260	8,784
	Competition Capacity on CGK-pvg	0	0
	GA Fr ekly)	0	6,760

Useful for ASA w... wide and narrow bodies

	2012	2013	2014	2015	2016
Market share (business as usual) on CGK-pvg	4.3%	4.0%	5.6%	6.9%	6.5%
Market share (high) on CGK-pvg	5.0%	5.4%	8.7%	12.0%	12.4%
Market share when introducing 2 weekly Full Freighter	5.0%	5.4%	8.7%	24.0%	23.6%



Results of new strategy and improvement/turnaround actions reflected in the business plan

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Revenue forecast

-Scheduled seat revenues: route revenue forecast, market share, fares, service/schedule quality

- Charter revenues
- Non seat airline revenues: ancillaries
- SBU revenues : third party growth

Cost Forecast

- Direct operating costs
- Aircraft ownership costs
- Overheads

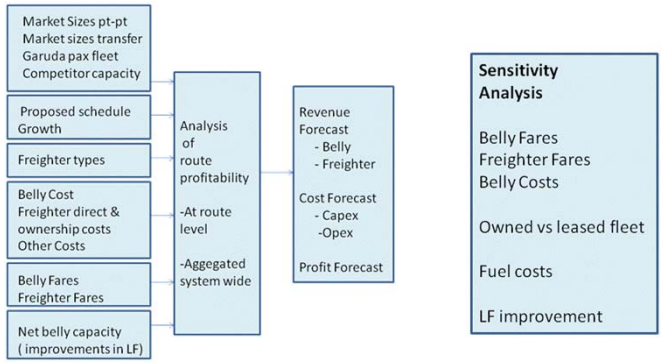
Assumptions including improvements of business benefits

- Impact of product improvement on yields/fares
- Impact of productivity and cost reduction initiatives

Development of the Business Plan with Revenue, Cost and Profitability Forecasting Including Strategy and Improvement Impacts

- Route level business plan for different freighter types tested at different frequencies for route profitability for belly and freighter operations
- Opportunities in reduction of direct and indirect aircraft-related cost:
  - Direct costs will include fuel, maintenance, crew, ground handling, over flight , ownership etc
  - For belly cost per KG carried will be used. If airline is allocating other direct and indirect costs these will be used.
- Profitability forecast will be developed for belly and freighter operations
- Sensitivity analysis

Business plan method based on marketshare, fare , operating and capital costs for freighter and belly



Business plan is based on directional (inbound and outbound route level profitability

.) by A330 Freighter	2012	2013	2014	2015	2016
Total Operating Revenues					
Scheduled Full Freighter Revenue	-	10,869,673	10,869,673	16,304,509	16,304,509
Passenger (belly) Revenue	7,153,070	7,264,308	10,815,246	14,233,240	14,124,143
Total Revenue	**7,153,070**	**18,133,981**	**21,684,919**	**30,537,750**	**30,428,652**
Direct Operating Cost (excluding Ownership)					
Fuel	-	6,512,381	6,512,381	9,768,571	9,768,571
Cockpit Crew	-	651,238	651,238	976,857	976,857
Maintenance	-	781,486	781,486	1,172,229	1,172,229
Depreciation	-	2,050,194	2,050,194	3,075,291	3,075,291
Insurance		85,425	85,425	128,137	128,137
ATC/LDG charges	-	673,367	673,367	1,010,050	1,010,050
Sales Commision	-	156,900	156,900	235,350	235,350
Total Direct Operating Cost	-	8,618,472	8,618,472	12,927,708	12,927,708
Total Indirect Operating Cost	-	2,292,518	2,292,518	3,438,778	3,438,778
Total Full Freighter Operating Cost	-	10,910,990	10,910,990	16,366,485	16,366,485
Passenger (belly) Operating Cost	7,653,167	7,942,968	12,082,153	16,245,108	16,469,692
Total Operating Cost	**7,653,167**	**18,853,958**	**22,993,143**	**32,611,593**	**32,836,178**
Profit (Belly Space, US$)	-500,097	-678,660	-1,266,906	-2,011,867	-2,345,550
Profit (Full Freighter, US$)	-	-41,317	-41,317	-61,976	-61,976
Total Profit (US$)	**-500,097**	**-719,977**	**-1,308,224**	**-2,073,843**	**-2,407,526**
Profit Margin (Belly Space, %)	-7.0%	-9.3%	-11.7%	-14.1%	-16.6%
Profit Margin (Freighter, %)		-0.4%	-0.4%	-0.4%	-0.4%
Total Profit Margin (%)	**-7.0%**	**-4.0%**	**-6.0%**	**-6.8%**	**-7.9%**

Minor variation in modelling assumptions can make significant difference on profitability/financial forecast

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Due diligence questions

- Market growth rates
- Competitor capacity growth rates
- Average fares
- Fare improvement as a function product improvement
- Ancillary revenues
- SBU third party marketshare/revenue growth assumptions
- Fuel costs: current and future
- Maintenance costs – accuracy/variations
- Aircraft ownership costs – list, actual
- Depreciation rates

Sensitivity analysis : major revenue and cost assumptions

	Baseline		Shock Scenario	
Key Statistics	2011	2015	2011	2015
Passengers	262,968	2,891,151	253,274	2,768,001
Revenue	$ 53,052,618	$ 652,142,240	$ 43,982,830	$ 537,292,097
Operating Expenses	$ 69,714,983	$ 509,015,566	$ 72,540,299	$ 528,936,974
Profit (Loss)	$ (16,662,366)	$ 143,126,674	$ (28,557,470)	$ 8,355,123
Operating Margin	-34.5%	24.6%	-71.4%	1.7%

	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Key Statistics	2011	2015	2011	2015	2011	2015	2011	2015
Passengers	262,968	2,891,151	262,968	2,891,151	253,274	2,768,001	262,968	2,891,151
Revenue	$ 45,978,935	$ 565,189,941	$ 53,052,618	$ 652,142,240	$ 50,749,419	$ 619,952,419	$ 53,052,618	$ 652,142,240
Operating Expenses	$ 69,264,058	$ 504,714,962	$ 72,137,108	$ 527,628,489	$ 69,537,333	$ 507,031,861	$ 70,701,516	$ 516,218,616
Profit (Loss)	$ (23,285,123)	$ 60,474,979	$ (19,084,491)	$ 124,513,751	$ (18,787,914)	$ 112,920,559	$ (17,648,898)	$ 135,923,624
Operating Margin	-55.7%	12.0%	-39.6%	21.4%	-40.7%	20.4%	-36.6%	23.3%

Scenario 1 – Fares are discounted XX percent from MIDT market fares versus XX percent in the Baseline scenario

Scenario 2 – Fuel price of $XX/kg consumed increases by XX percent

Scenario 3 – Market introduction stimulation rates are lowered by XX percent

Scenario 4 – Overhead costs increase from X percent to XX percent of all other costs

Shock Scenario – All of the above factors occur at once, showing a worst case scenario

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AVIATION TRANSPORTATION TOURISM

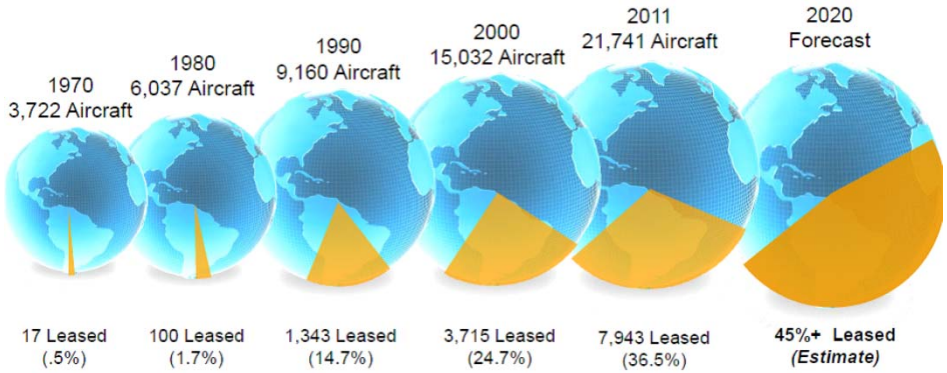
Sources of Finance



Cash

It is still the cheapest way to finance aircraft but only an option for profitable airlines (like Southwest) or state-owned airlines with well capitalised owners.

The problem with financing all of the fleet with cash is that during the downturn, when you need to release the cash, financing terms are much worse.



Operating Leasing

Operating lessons either order aircraft from manufacturers or buy them from airlines and lease them back (this is known as sale/leaseback).

The operating lessor leases the aircraft to the airline, which is also called the lessee. Leases can be as short as a couple of months to cope with seasonal demand like summer tourist peaks, ski seasons or the Haj. Airlines can also lease crew and pilots with aircraft; these are known as wet leases.

However, most leases are for three to five years with airlines paying monthly lease rentals. Operating lease provides airlines flexibility. Typically they are expensive. Operating lessors expect to have to place an aircraft several times during its life. The aircraft often starts with a strong carrier and ends up in a developing country or as a cargo aircraft. The share of operating leases has been increasing significantly.

Sources of Finance

InterVISTAS

Bank Loans

Banks lend money to airlines with the loan guaranteed by the aircraft. The bank can repossess the aircraft if the airline stops paying its loan. Loans are usually 12 years long. Finance leases are similar to loans, except the bank then buy the aircraft from the airline (another sale/leaseback). The airline then makes monthly lease payments and at the end of the lease it owns the aircraft. Finance leasing is just like hire purchase. Banks typically lend 85% of the aircraft's value with airlines paying 15% in cash. This 15% is known as equity.

Export Credit Loans

Few banks, however, would be prepared to lend money to the airline as they do not make large profits and the country is viewed as risky. So, the Export-Import Bank of the United States ("Ex-I'm Bank") will guarantee the loan. If the borrowing airline fails to make payments, the Ex-I'm Bank will cover the banks losses.

Airbus aircraft are made in France, Germany and the UK, so each respective government covers the proportion made in their country. The French export credit agency is called Coracle, the German agency is called Hermes, and the UK has the Export Credits Guarantee Department or ECGD.

Export Development Canada handles Bombardier loans, and BNDES guarantees Embraer exports. Export credit loans cover 85% of the aircraft's value

Sources of Finance

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Tax Leases

Governments always want their businesses to be as efficient as possible so their industries can compete with other countries. One way to improve efficiency is to have modern equipment, so governments encourage companies with tax breaks. Companies that buy equipment get to avoid paying tax on them (this is usually done through depreciation allowances). The problem is airlines rarely make enough profits to benefit from these allowances. So airlines pass these benefits off to companies or individuals that have large tax bills by selling the aircraft and leasing them back.

In France and Spain only, banks are eligible to buy aircraft. In Japan and the US, companies often take stakes. Most investors only take 15% of the aircraft, with a bank (or group of banks) lending the rest as a loan. This is why they are often called leverage leases. The main types of tax leases are: Japanese operating leases (JOLs) which most airlines can close; French Leverage Leases (FLLs), which are only allowed for French airlines; Spanish operating leases (SOLs) only for Spanish airlines; and US leverage leases.

Manufacturer Support

Most manufacturers do not like financing aircraft, but they accept that some times financing help is needed to get a sale. Typical support would include the manufacturer leasing the aircraft with finance or operating leases, or guaranteeing the aircraft's value at the end of a lease or loan (this is known as a residual value guarantee). The easiest way to provide a residual value guarantee is to agree a price that the manufacturer will pay for the aircraft at the end of the loan.

or leasing

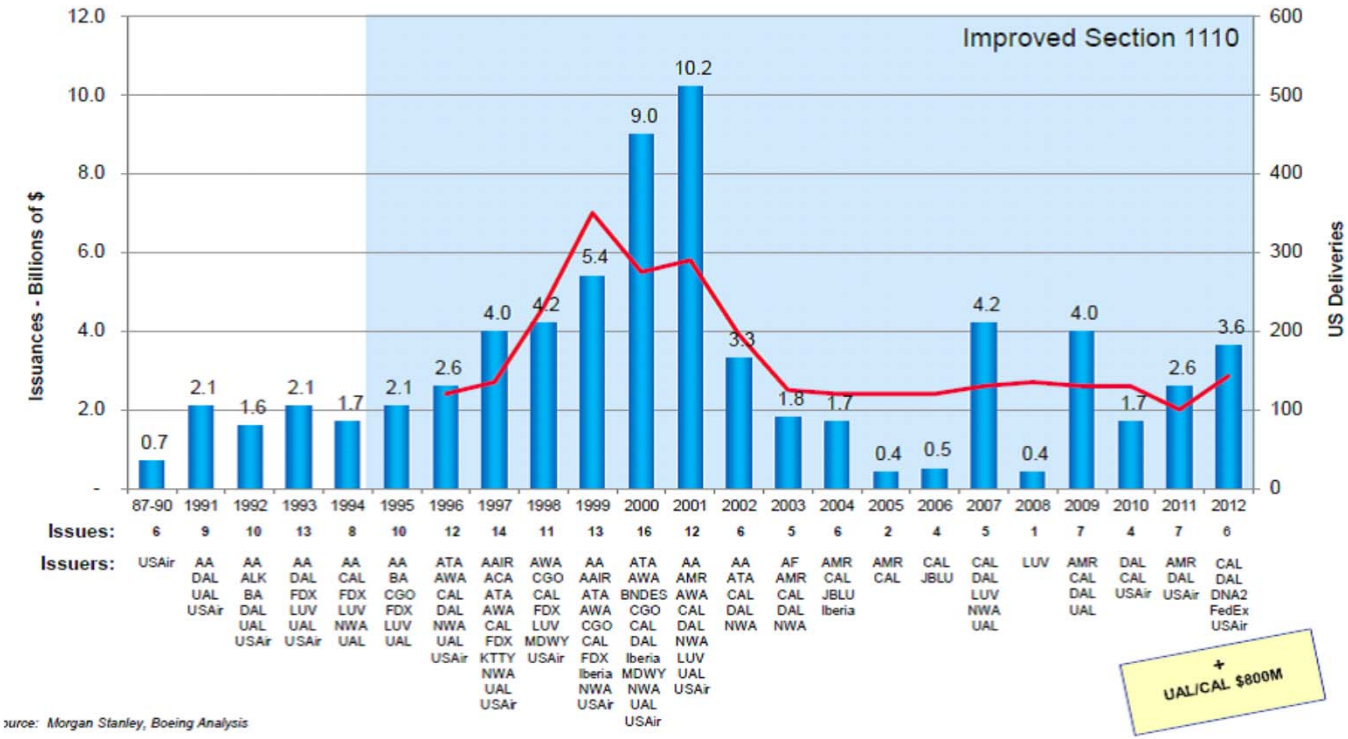
Sources of Finance

EETCs

EETCs – or enhanced equipment trust certificates – are bonds that airlines issue to pay for aircraft. The airline sets up a special purpose company or SPV (it's only purpose or business is to own the aircraft) that issues bonds to investors. The SPV then uses the cash from these bonds to buy aircraft through a sale/leaseback. The airline then makes lease payments to the SPV and the SPV passes these on to the investors as bond interest. Chart below provides overview of EETC deals

Islamic Finance

Sharia, or Islamic law, prevents lenders from charging interest. The main Islamic aircraft finance technique is Ijara or leasing



Financial analysis for determination of Sources and application of funds for aircraft financing

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SOURCES AND APPLICATION OF FUNDS [BLEND]

FUNDING REQUIREMENTS

1. Capital Expenditure

Client Airline

Equity funding requirement for Refleeting (Generic AC Blend Scenario - bought AC only) including current year cabinmod ($XX m)

Client SBU's

Information Technology

SBU Engineering

XXX

SBU Cargo

Airport Services XX

Airport Services - XX

Total Equity funding requirement by SBUs

Total CAPEX

2. Capitalised Cost of Engines Overhauls - current fleet only

3a. Maintenance Reserves (Net of Recoveries) - current fleet - reflected in AC OPS COST

3b. Maintenance Reserves (Net of Recoveries) - new fleet - reflected in AC OPS COST

4. Increase in Inventories (from original BP)

5. Increase in Trade Receivables

6. Increase in Trade Payables (from original BP)

7. Repayment of Interest Bearing Liabilities - Foreign Loans

8. Repayment of Interest Bearing Liabilities - Local Loans (FY2012/13 ff from original BP)

Total Funding Requirement

SOURCES OF FUNDS

1. CILIENT GROUP EQUITY INFUSION REQUIREMENT [BLEND]
2. Proceeds of IPO of subsidiary (potential of $ XXm indicated)
3. Proceeds from Disposal of Property, Plant and Equipment (from original BP)
4. Proceeds from Interest Bearing Loans and Borrowings (from original BP)
5. Client Profit adjusted for non-cash items

Total Funding Available

NET INCREASE IN CASH

Cash Balance Brought Forward

CASH BALANCE CARRIED FORWARD

# of Months of Operating cost for min cash level

Min. cash liquidity required

Min. cash level ok?

XX GROUP CUMULATIVE EQUITY INFUSION REQUIREMENT - BLEND Scenario

Dividend potential to Equity Investor (capped at XX % of Client Group profit p.A.)

Use of accurate assumptions in aircraft purchase and lease calculations

Purchase & Lease of new aircraft
EQUITY
Required PDP equity narrowbody aircraft
Required Delivery Equity narrowbody aircraft
Interest payments on PDP Debt
Owned Narrowbody Total
Rent, only for 3 new replacement & growth narrowbody aircraft
Deposits (3 months rental)
Maintenance Reserves on new NB fleet only
Leased Narrowbody Total
Owned and interim leased Narrowbody total
Required PDP equity widebody aircraft
Required Delivery Equity widebody aircraft
Interest payments on PDP Debt
Owned Widebody Total
Rent, only for 3 new long term lease replacement widebody aircraft
Deposits (3 months rental)
Maintenance Reserves on new WB fleet only
Leased Widebody Total
Owned and interim leased Widebody total
New Aircraft Total Equity demand (incl. PDP interest)

DEBT
PDP Debt converted into senior loan at Delivery - narrowbody
PDP Debt converted into senior loan at Delivery - widebody
Senior Loan amount at end of fiscal year - narrowbody
Leverage (PDP + Sr Loan) at end of fiscal year - narrowbody
Senior Loan amount at end of fiscal year - widebody
Leverage (PDP + Sr Loan) at end of fiscal year - widebody
Total Senior Loan at end of fiscal year - fleet
Fleet leverage at end of fiscal year
Senior loan annuity payments
Interest payments of Senior loan after Delivery - Narrowbody
Interest payments of Senior loan after Delivery - Widebody
New Aircraft Total Funding demand (incl. debt interest payments)
Principal payments of Senior loan after Delivery - Narrowbody
Principal payments of Senior loan after Delivery - Widebody

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Please contact Dr. Emre Serpen for any queries.

Thank You!

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