ROUTE TRAFFIC FORECASTING DATA, TOOLS AND TECHNIQUES

ROUTE TRAFFIC FORECASTING
MODULE 3

ASM GLOBAL ROUTE DEVELOPMENT

UBM

OBJECTIVES

- Appreciate why we are route forecasting
- Understand the different audience requirements
- Understand the different market segments to forecast
- Understand the techniques and methodologies required
- Apply what is appropriate and relevant for our traffic forecast

Why are we route forecasting

AIRLINE FACTS OF LIFE - I

They do need your analysis!

Many airline planners operate under the following conditions:

- They have cut staff:
  All areas of staffing have been reduced, sometimes planning rests with one or two people – witness who attends Routes.
- They have lost expertise:
  Some skills have not been replaced, or now reside elsewhere within another profit centre such as cargo.
- They cannot necessarily afford data:
  The medium-sized airlines are worst hit, but low-cost airlines can be data-poor.
- They have lost local market intelligence:
  As part of company rationalisation, there is less representation on the ground.
- They're too busy running the current business.

AIRLINE FACTS OF LIFE – II

You need to convince them of the opportunity!

- Generally speaking airlines will only initiate their own forecasting exercise once you have convinced them of the opportunity.
- The airline needs to be able to answer the following questions positively:
    - Will the route make a profit?
    - Does the route fit into the network?
    - Will the route cannibalise other routes in their network?
    - Will the community/market support the service?
    - What is the risk associated with entering the market?

Who is our audience

First Question:

Is the audience internal or external?

WHO COULD BE AN EXTERNAL AUDIENCE?

External	Example
The Airline itself	The target of the route development
Tourism Agency	Aims to maximise tourist influx in the region
Regulator	CAA, DOT, FAA etc…
A risk share partners	Tour Operator, Hotelier
Inward Investment Agency	Aims to maximise direct investment in the region
Government Agencies	Transport Ministry, Public works etc…
Institutional shareholder	Pension Funds, PPI board etc…

- The stakeholders may become your INTERNAL audience once they are convinced of the route development plans and start working along side you to present to the truly external audience – the airline.

THE INTERNAL (AIRPORT & STAKEHOLDERS) VS. EXTERNAL (AIRLINE)

Internal (Airport & Stakeholders)	External (Airline)
Reality check of what is possible	Market potential, likely traffic volumes
Options for best targeting (right airline for the right route)	How traffic will be secured
Appreciate airlines risk exposure & profit potential	Traffic mix; passenger / cargo, inbound / outbound, business / leisure / VFR, tour operator / direct sale
Understand route sustainability (yield, costs, seasonality…)	Profit potential and risk
Appreciate how route ranks against competitors	Fit with strategy
Determine support packages	How route compares to other choices
Determine traffic delivery actions	Commitment of airport and stakeholders

- Remember who your audience is and tailor the material to suit.
- You are the expert on your market. Don’t presume the audience know where, what or who you are representing!

HOW NOT TO PRESENT

Internal (Airport & Stakeholders)	External (Airline)
Only One option	Telling them how to run their business
No alignment with strategies	Over clever and detailed analysis - no showing off !
Build false hope	Proposal entirely based on route economics
Being over pessimistic	A "fait accompli" presentation - no room for further research and analysis, no room for negotiation
	Unreliable or exaggerated assumptions

- Be – confident
- Show you've done your homework (market & them)
- Listen
- Be supportive
- Focus on information they don't have
- Be prepared to work alongside them

Route Traffic Forecasting

Proving the Market

- “Forecasting is not an exact science”
- Many different forecasting approaches are available – largely dependent upon data and time available
- Approach must be familiar to the airlines
- Assumptions should always be clearly stated
- Useful to test methodologies on existing routes (benchmarking)
- No substitute for comprehensive data

Potential Market Segments

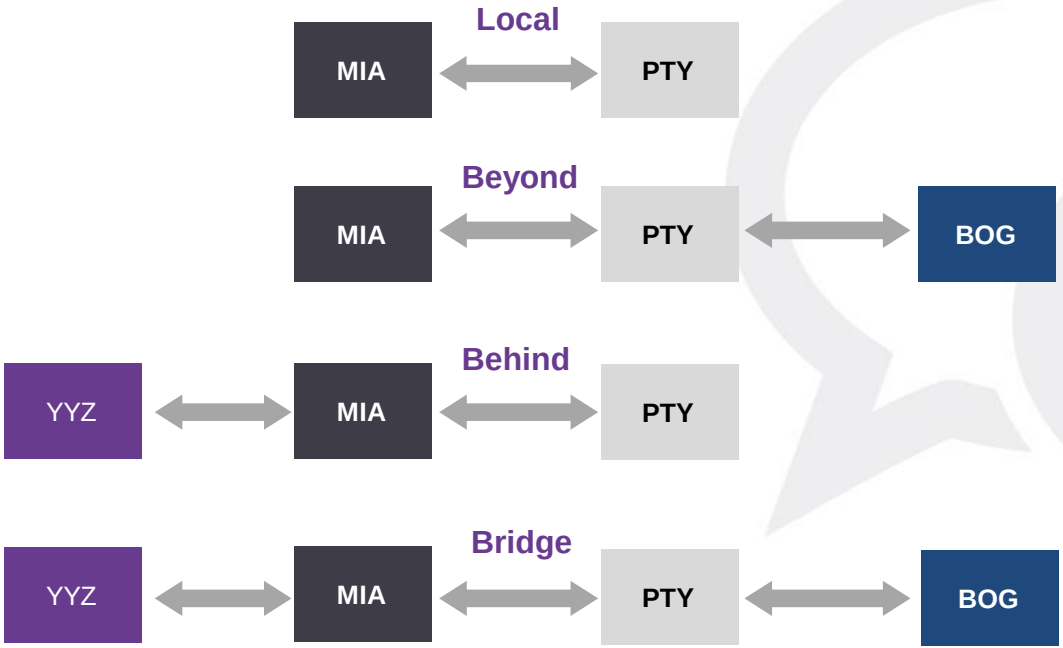
Market segments to be forecasted will vary depending on:

- The type of carrier – legacy / alliance / low cost
- Airport function: Hub or Spoke?
- The competitive environment – surface leakage and / or air transfer
- Geography: certain connecting markets would be discounted to account for “backhauls” (passengers travelling in the wrong ‘direction’)

Passenger Traffic Market Segments
- **Local**
- **Behind**
- **Beyond**
- **Bridge**

Indirect Passenger Modes of Travel
- **Online**
- **Interline**
- **Self Connection**
- **Surface “Leakage”**

Potential Market Segments - Terminology



Which Airline for Which Market Segment?

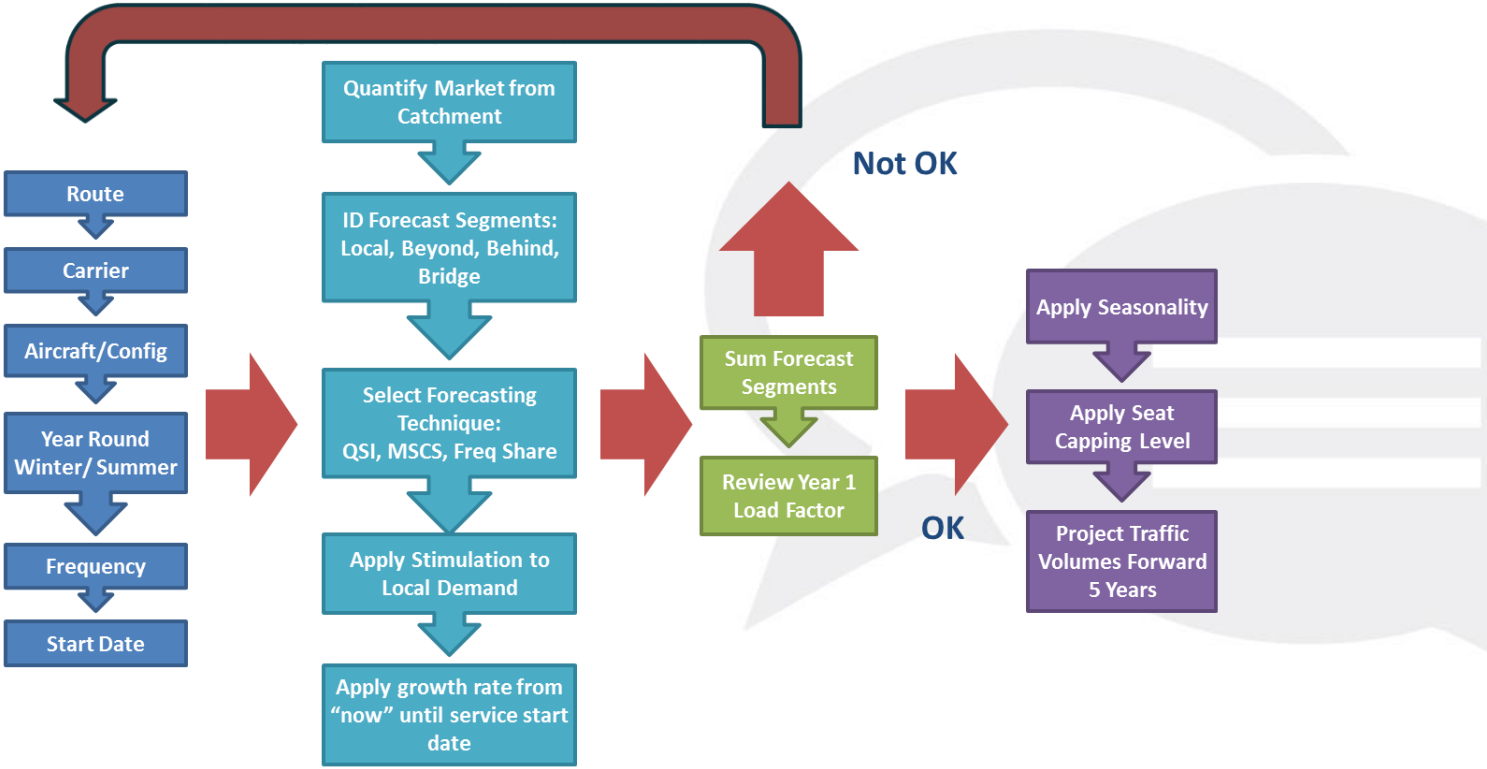
Market Segment	Low Cost Carrier	Scheduled No Hub Network	Scheduled Hub Network to Non Hub destination	Scheduled Hub Network to Hub destination
Local	Yes	Yes	Yes	Yes
Beyond	No	No	No	Yes
Behind	No	No	Yes	Yes
Bridge	No	No	No	Yes

- Can we think of airline examples that fit each category ?

The market share penetration that a carrier could achieve in various market segments can be evaluated by employing the following methodologies:

- **Market Share / Capacity Share (MS:CS) Analysis**
  - Local direct passenger traffic: if market is already served
- **Quality of Service Index (QSI) Analysis**
  - Local indirect passenger segment: if market is served, currently not served or partly served
- **Frequency / Capacity Share Analysis**
  - Beyond/behind connecting passenger traffic potential
- **Simple Market Penetration**
  - Bridge traffic

TRAFFIC FORECAST PROCESS



Market Share / Capacity Share Forecasting

- MS:CS forecasting assumes that the share of traffic on an existing route that a new entrant will capture, will be in some way proportional to its share of seat capacity in the market.

MARKET SHARE = SEAT CAPACITY SHARE X MS:CS RATIO (MCR)

- The MCR value is a reflection of the relative attractiveness/performance of one airline over another:
    - Any ratio achieved above 1 is a positive position.
    - Any ratio below 1 is a negative position.

Market Share / Capacity Share Forecasting

- All airlines strive to reach a MS:CS ratio of 1 since this means that their share of passengers equals their share of capacity produced.
- Looking at how a carrier with similar characteristics compares to the new entrant, will give us a benchmark MCR value to apply to our forecast.

What types of carriers will achieve different levels of MS : CS ?

Can this methodology also be applied to airports ?

Market Share/Capacity Share Worked Example

- New Entrant Airline XX wishes to enter market currently served by airline YY
- YY carries 150,000 passengers a year at a load factor of 75% (200,000 seats)
- XX wishes to put 100,000 seats in the market
- XX is a low fares carrier, which we would expect to achieve an MCR value of 1.2
  (Assumes Carrier XX MCR has been evaluated in other comparative markets)

XX Market Share	= Capacity Share x MCR Value
	= 100,000/300,000 x 1.2 = 40%
XX Passengers	= 40% x 150,000 = 60,000
XX Year 1 Load Factor	= 60,000/100,000 = 60%

Market Share/Capacity Share Worked Example

- In this case airline YY would have lost 60,000 passengers reducing its load factor to:
- YY Load Factor = (150,000 – 60,000) / 200,000 = 45%
- Perhaps airline YY wouldn't be too pleased by this!
- However, in real life the introduction of new capacity is likely to see traffic being stimulated, although an amount of dilution of existing traffic flows is also expected.

Market Share / Capacity Share Example

- Many variables can influence how each airline is performing in a market.
- Low cost airlines can use price as a powerful mechanism to exceed a ratio of 1.

London (Gatwick) to Barcelona - 2015

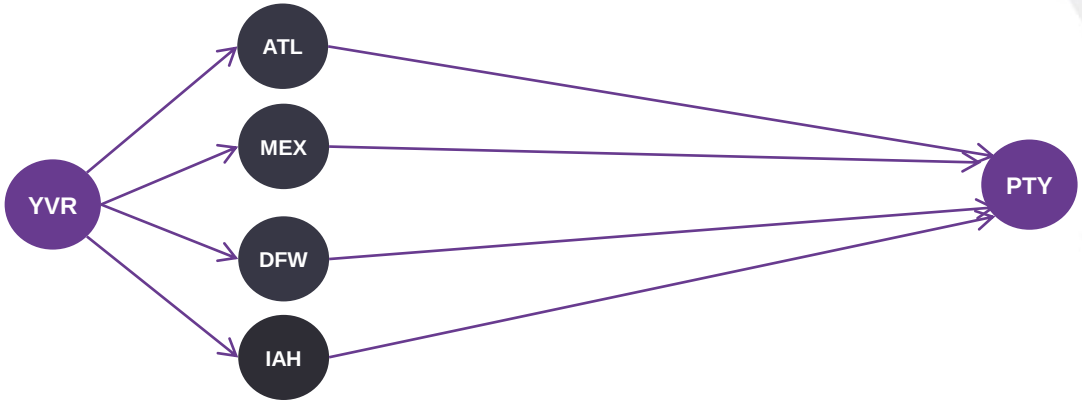
Carrier	Seats	O&D Pax	CS %	MS %	MCR
British Airways	247,399	143,198	21.4%	15.6%	0.73
easyJet	664,800	580,987	57.4%	63.2%	1.10
Monarch	125,796	98,562	10.8%	10.7%	0.99
Norwegian	114,680	91,996	9.9%	10.0%	1.01
Vueling	5,382	4,713	0.4%	0.5%	1.25
TOTAL	1,158,057	919,456	100%	100%	1.00

Market Share : Capacity Share

Practical Exercise

QSI Analysis Forecasting

- QSI analysis is a slightly more complex forecasting approach
- QSI stands for **Quality of Service Index**.
- QSI is best used when exploring the potential demand for a scheduled service that doesn't already operate but for which there are identifiable traffic flows via alternate points.
- It can also be used to analyse the markets where direct service already exists – additional frequencies / new entrant to the market analysis.



In this case, QSI would be used to determine the potential demand for a direct service between YVR and PTY and how much of the indirect traffic could be switched to non-stop.

QSI Analysis Forecasting

- QSI analysis works by assigning a weighting factor to different flight options available to a passenger when flying between point A and point B, to reflect the passenger's preference for one flight option over another.

- Variables that could be considered include:

  - Frequency of service
  - Minimum connecting times
  - Price
  - FFP's
  - Seats offered
  - Elapsed journey time
  - Aircraft type
  - IFE etc …

- In order to forecast what market share it might capture, the airline weights itself against this and other factors.

QSI Factor Benchmark Calculation using Frequency Share

- QSI value – how to determine how much more attractive a non-stop flight option is compared to the competing on-line connections for our airport.

- The example below illustrates the split of O&D traffic by routing between 2 airports and the number of non-stop and on-line connections between them in a given week.

O&D Traffic			Market Share		Weekly Frequency		QSI Value		QSI
Non-stop	Connecting	Total	Non-stop	Connecting	Non-stop	Connecting	Non-stop	Connecting	Factor
80,000	20,000	100,000	80%	20%	7	43	11.43%	0.46%	**25**

QSI Value or how much market share did each frequency capture. In this case: 1 non-stop = 80% / 7 or 11% of the market whereas 1 connecting flight < 0.5%

QSI Factor or how much more attractive is the non-stop flight option compared to the indirect one = 11.43% / 0.46% = 25

Applying the QSI Factor to an unserved O&D market

Service Option	Weekly Freq	QSI Factor	QSI Value	Market Share
On-line connection	90	1	90	34.0%
New nonstop	7	25	175	66.0%
Total QSI Value			**265**	
O&D Market Size			46,500	
Forecast market share			66.0%	
Forecast passengers			**30,708**	

Applying the QSI Factor to a served O&D market

Service Option	Weekly Freq	QSI Factor	QSI Value	Market Share
On-line connection	90	1	90	24.7%
Existing nonstop	4	25	100	27.4%
New nonstop	7	25	175	47.9%
Total QSI Value			**365**	
O&D Market Size			46,500	
Forecast market share			47.9%	
Forecast passengers			**22,295**	

QSI Example Calculation, Air Fares

- Using just frequency and fare on a route:
  - Airline 1 has 3 flights per day, average fare of $150
  - Airline 2 has 2 flights per day, average fare of $100
  - Airline 3 has 5 flights per day, average fare of $120
-
  - QSI (Airline 1) = 3/150 = 0.020
  - QSI (Airline 2) = 2/100 = 0.020
  - QSI (Airline 3) = 5/120 = 0.042

Total QSI (all airlines) = 0.020 + 0.020 + 0.042 = 0.082

QSI Example Calculation, Air Fares

- Therefore market share estimate for our three airlines would be:
  - Market share (Airline 1) = 0.020 / 0.082 = 24.5%
  - Market share (Airline 2) = 0.020 / 0.082 = 24.5%
  - Market share (Airline 3) = 0.042 / 0.082 = 51.0%

QSI Example Calculation, Schedule Quality

- Let us model the desirability (D) of a service by its departure time:

Time of Departure	Desirability (D) Factor
07:00	0.90
08:00	1.10
09:00	1.00
10:00	0.95
11:00	0.90
12:00	0.80
13:00	0.70
14:00	0.60

Time of Departure	Desirability (D) Factor
15:00	0.60
16:00	0.75
17:00	0.90
18:00	1.00
19:00	0.90
20:00	0.80
21:00	0.70
22:00	0.50

Schedules Assessed

- Suppose our three airlines had departures at the following times:

  Airline A : 07:00, 13:00, 19:00
  Airline B : 08:00, 18:00
  Airline C : 07:00, 11:00, 14:00, 18:00, 22:00

  Average “D” for each airline:

  Airline A : (0.90 + 0.70 + 0.90) / 3 = 0.83
  Airline B : (1.10 + 1.00) / 2 = 1.05
  Airline C : (0.90 + 0.90 + 0.60 + 1.00 + 0.50) / 5 = 0.78

Incorporate Into Air Fare QSI - Market Share Calculation

- Include “D” factor as multiplier effect

QSI (Airline 1) = 0.83 * 3 / 150 = 0.0166
QSI (Airline 2) = 1.05 * 2 / 100 = 0.0210
QSI (Airline 3) = 0.78 * 5 / 120 = 0.0325

QSI (All airlines) = 0.0166 + 0.0210 + 0.0325 = 0.0701

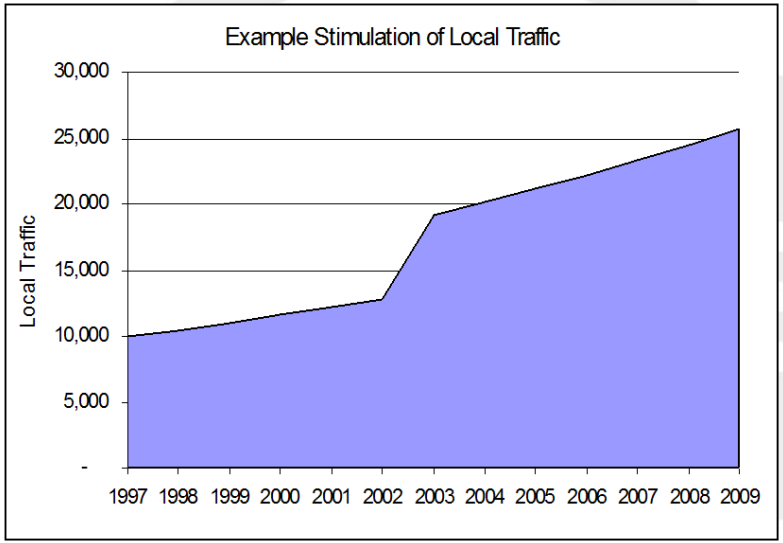
Market share (Airline 1) = 0.0166 / 0.701 = 23.7%
Market share (Airline 2) = 0.0210 / 0.701 = 30.0%
Market share (Airline 3) = 0.0325 / 0.701 = 46.4%

Incorporate Stimulation Into QSI - Market Share Calculation

- Previous experience shows that the introduction of new non-stop/through services can stimulate local traffic demand with a one-off step increase in traffic above that normally accrued by normal market growth.

- The extent to which a market can be stimulated is of course dependent on numerous factors:

    - ‘Latent’ demand
    - Marketing activity
    - Pricing
    - Service frequency

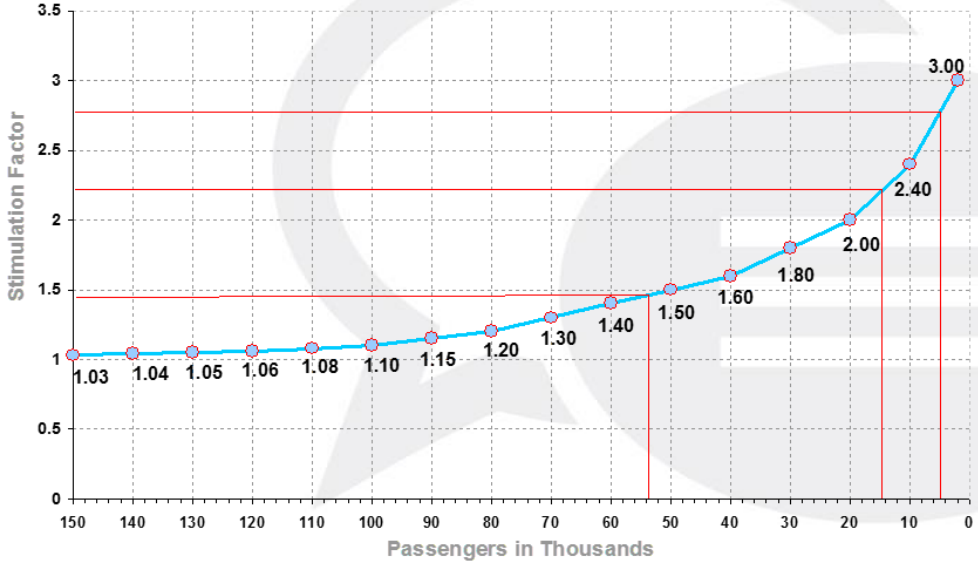


Market Share : Capacity Share

QSI

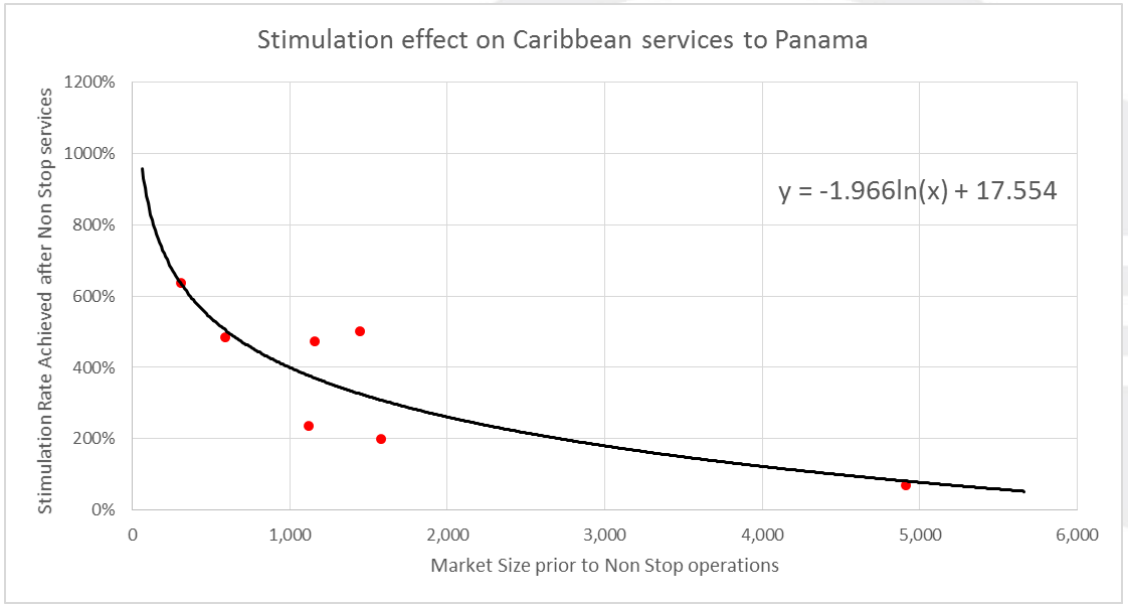
Market Stimulation

- As a guide to how much a market could be stimulated, reference can made to the IATA stimulation curve.
- The smaller the existing market, the higher the level of observed stimulation.

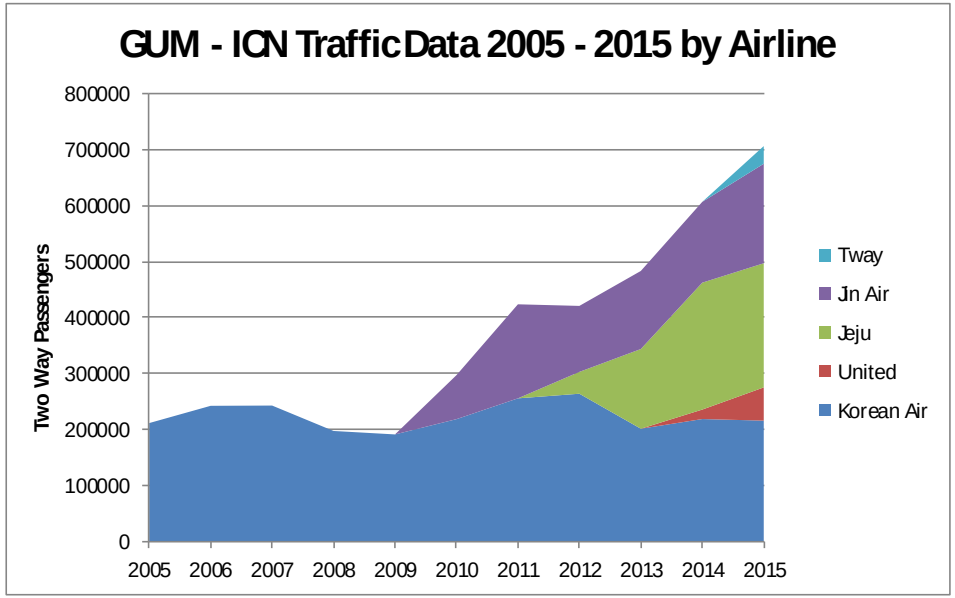


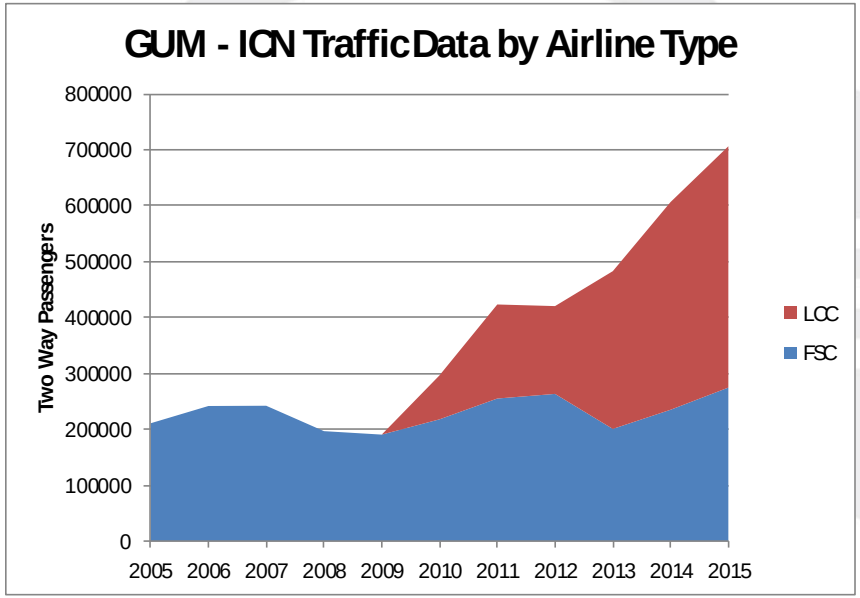
Market Stimulation

- Airports can develop their own stimulation curve based upon their experience in their own market.
- This graph illustrates the impact of Copa Airlines adding services from the Caribbean to Panama.
- A target Caribbean market could be graphed to estimate the level of stimulation that might be expected with a new connection to Panama



Market Stimulation example



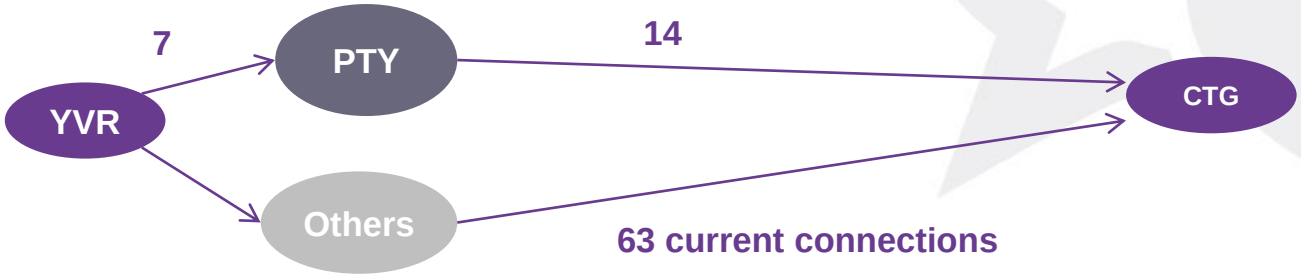


Market Stimulation

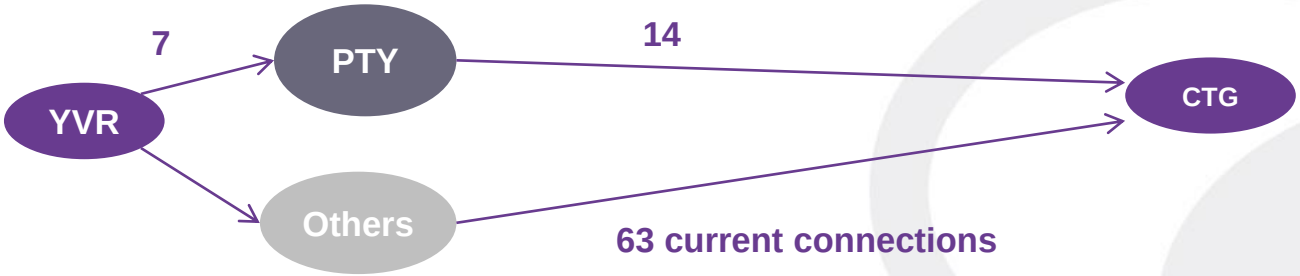
Practical Exercise

Connecting Hub Flows - Frequency Share

- To ascertain how much connecting traffic a new service would attract, a frequency share technique can be applied.
- This means the market share of connecting traffic between 2 points that could be served via the hub of the new service is assumed to be directly proportional to its share of the on-line connections between the 2 points.

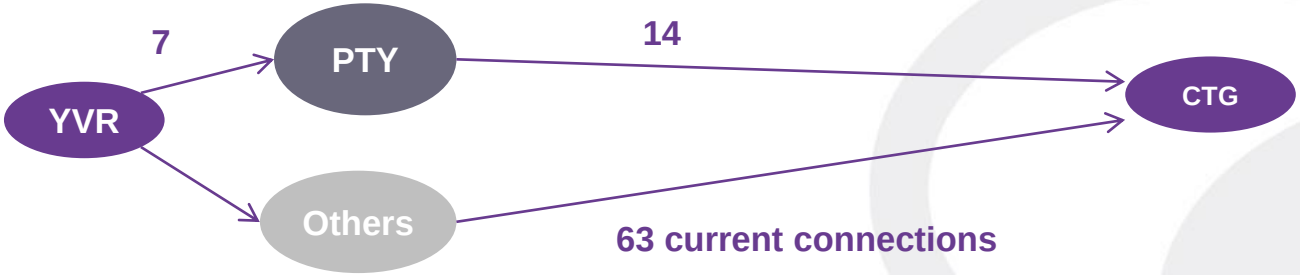


Frequency Share – Connecting Hub Flows



- For example, there are currently 63 online connecting opportunities per week between YVR and CTG, while there are 14 weekly nonstops between PTY - CTG flights.
- If a new airline were to operate a service between YVR and PTY at a frequency of 7 times per week and the timings were appropriate, the airline could generate an additional 7 connecting opportunities from YVR to CTG via PTY per week.
- Therefore, this new service could potentially capture 7/70 or 10% of the indirect traffic between YVR and CTG.

Frequency Share – Connecting Hub Flows



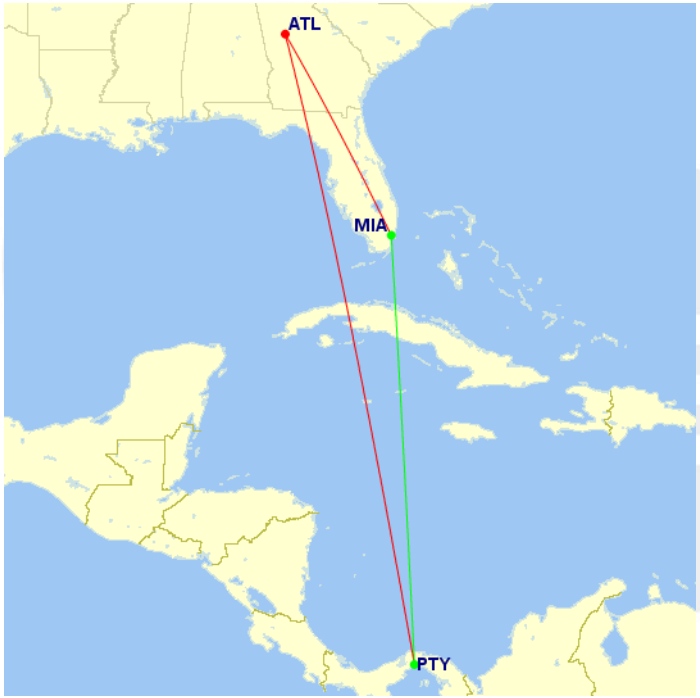
Route	Indirect Pax	Proposed freq YVR-PTY	Existing freq PTY-CTG	New cnx opp. YVR-CTG	Existing cnx YVR-CTG	New total cnx YVR-CTG	Freq. share	Forecasted Traffic
YVR-CTG	24,000	7	14	7	63	70	10.0%	2,400

- Now repeat for all the other points on the network…

Frequency Share – “Backhaul” discounts

MIA-PTY: 1,152 miles
MIA-ATL-PTY: 2,315 miles
Circuity factor: 2.01

- Geography would suggest that we ignore any feeder potential from MIA via ATL to PTY.
- However, this is subject to the flight options available from MIA.



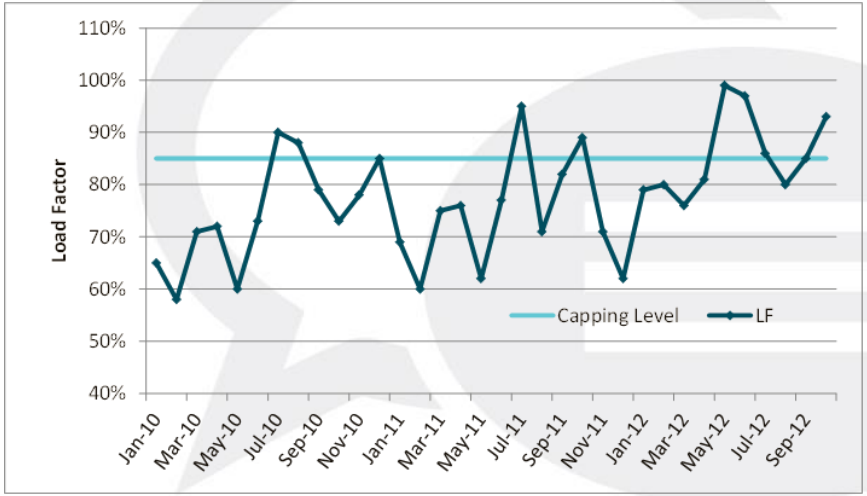
Bridge Traffic – Simple Market Penetration Rate

- Benchmark typical Bridge traffic % on existing routes – similar airline(s) and/or similar market(s)
- Apply % of Bridge traffic to the consolidated Local, Behind, Beyond forecasted traffic

Forecast Summary	Year 1	
Segment 1 - Local XXX-YYY Traffic incl. stim @80%	23,991	
Segment 2 - Beyond YYY 1 Stop Connecting Traffic	30,106	
Segment 3 - Behind XXX 1 Stop Connecting Traffic	45,468	
Segment 4 - Bridge/2 Stop Traffic @5% of Traffic	5,240	= ('LBBTraffic' / (1 - 0.05)) - 'LLB Traffic'

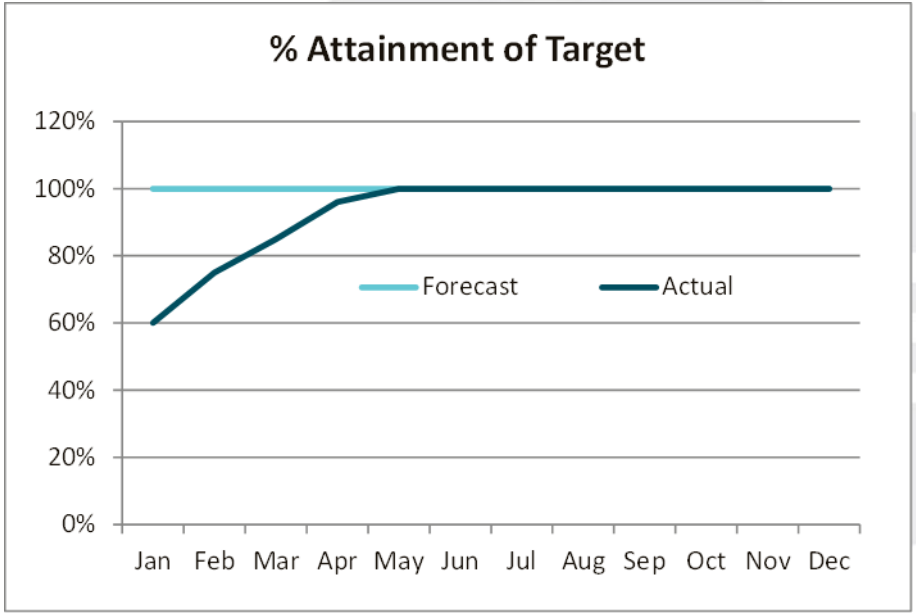
Seasonality, Spillage and Seat Capping

- When seasonality is applied, there are times of the year when there will be more passengers predicted than seats available.
- Under such circumstances passengers will be “spilled” or not flown. Consequently, the final forecast passenger volume could be lower than the base forecast.
- Seat capping is a means of artificially limiting the number of seats available and hence passengers to prevent instances of predicted load factors reaching 100%. Even though it could happen – it doesn’t look credible.



Market Maturity Discount

- In order to reflect that it might take some time for a new service to establish itself in the market, it is sometimes the practise to discount our initial forecast by an amount.
- For example, 10% in Year 1.



AIRLINE TRAFFIC FORECASTING - SUMMARY

Summary

- Identify and quantify the potential market from your catchment area.
- Identify which market segments need to be forecasted.
- Identify which are the most appropriate forecasting techniques.
- Sum up the forecast components.
- Calculate the year 1 load factor.
- Project the traffic volumes forward with your calculated growth rates.
- Apply seasonality, load factor capping and maturity discounts