SeaburyAPG
Analysis

Air New Zealand - Singapore Airlines
Strategic Alliance Analysis

SEABURY APG
AVIATION PLANNING & TECHNOLOGY

December 2013

1.0 Executive Summary

SeaburyAPG has been engaged by Air New Zealand to evaluate a strategic alliance scenario between Air New Zealand and Singapore Airlines. SeaburyAPG was provided a schedule scenario to analyze to determine the impact on the market of the proposed strategic alliance. The proposed schedule for Air New Zealand and Singapore Airlines contains extensive codeshare flights between the two airlines and results in an increase in capacity in the New Zealand - Singapore market.

SeaburyAPG has previously undertaken hundreds of airline network planning and alliance projects, and has developed proprietary tools to evaluate such scenarios. SeaburyAPG has developed a standard methodology based on industry standard QSI logic to forecast the results of the alliance scenario.

Analysis of the scenario forecasts that the additional capacity and strategic alliance arrangement between the two airlines would result in demand for travel between New Zealand - Singapore being stimulated by 18,596 passengers per year and the total number of passengers travelling between the two countries on combined Singapore Airlines or Air New Zealand services in the proposed schedule would increase by 90,049 passengers per year compared to the base schedule operated by Singapore Airlines.

The mix of passenger traffic forecast under the scenario highlights the necessity of the strategic alliance for Air New Zealand. 65% of Air New Zealand passengers are forecast to be connecting passengers (almost all of these are forecast to connect onto Singapore Airlines flights beyond Singapore). Furthermore, the extensive codeshare relationship creates 58 new codeshare points throughout Asia, Europe and the Middle East which Air New Zealand does not currently serve today, and more than half of Air New Zealand codeshare passengers (57%) are forecast to connect to these points.

The conclusion from the analysis is that market stimulation of 18,596 passengers per year will result from the strategic alliance, based on the schedule provided, and that the proposed Air New Zealand flights from Auckland to Singapore are feasible under the strategic alliance. However, without a strategic alliance in place Air New Zealand would not have access to the connecting passengers required to make a new Auckland - Singapore service feasible and is unlikely to operate flights in this market.

2.0 Air New Zealand - Singapore Airlines strategic alliance scenario

Air New Zealand provided a potential schedule for an alliance with Singapore Airlines to SeaburyAPG to be analyzed. The potential schedule includes Air New Zealand operating flights from Auckland to Singapore and codeshare on Singapore Airlines flights beyond Singapore.

The schedule provided by Air New Zealand to be evaluated is as follows:

Existing schedule: New Zealand - Singapore

i. Auckland - Singapore
   - Singapore Airlines 7 flights per week with B773 aircraft (278 seats)
   - Singapore Airlines 5 flights per week with B772 aircraft (285 seats)

ii. Christchurch - Singapore
   - Singapore Airlines 7 flights per week with B772 aircraft (285 seats)

Proposed schedule to evaluate: New Zealand - Singapore

i. Auckland - Singapore
   April - September
   - Singapore Airlines 7 flights per week with B773 aircraft (278 seats)
   - Air New Zealand 7 flights per week with B772 aircraft (312 seats)

   October - March
   - Singapore Airlines 7 flights per week with A380 aircraft (471 seats)
   - Air New Zealand 7 flights per week with B772 aircraft (312 seats)

ii. Christchurch - Singapore
   - Singapore Airlines 7 flights per week with B772 aircraft (285 seats)

iii. Beyond Singapore
   Air New Zealand codeshare on selected Singapore Airlines and Silk Air flights from Singapore

The key components of the proposed schedule are as follows:

1. Air New Zealand launches daily flights in the Auckland - Singapore market
2. Singapore Airlines reduces frequency in the Auckland - Singapore market from 12 flights per week to seven flights per week
3. Singapore Airlines changes the aircraft on its remaining seven Auckland - Singapore flights on a seasonal basis from a 278 seat B773 to a 471 seat A380

3.0 Methodology

SeaburyAPG has previously undertaken hundreds of network planning and partnership projects for many airlines around the world. SeaburyAPG has a proven methodology using proprietary network planning tools based on industry accepted QSI logic. SeaburyAPG tools are currently used by over 50 airlines around the world. The two key components of the SeaburyAPG analysis are the methodology used for the analysis and the data source for market demand.

3.1 QSI methodology

Quality of service index (QSI) is a methodology for forecasting the changes in demand and passenger share resulting from changes in airline capacity. This methodology is widely used by many of the world's leading airlines and is the industry standard methodology for demand forecasting and capacity planning. SeaburyAPG has used this methodology for over 15 years on hundreds of airline projects, which have involved both capacity planning and fleet planning resulting in tens of billions of dollars of aircraft orders. Air New Zealand also uses this methodology and QSI forecasting tools for capacity planning purposes.

In brief, QSI is a way of applying a quantitative method to the qualitative concept of service quality. QSI attempts to forecast consumer behavior by quantifying the relative attractiveness of different flight options. Itineraries between two points are assigned a value, indexed against a nonstop narrow body aircraft. Values vary depending upon the size of aircraft (seat capacity) and type of service, i.e. nonstop, one or two stops, online connection, interline connection or codeshare. Relative values are assigned to the service in the market on an O&D basis allowing passenger share to be assigned for each O&D and then aggregated to a segment level providing a passenger forecast per flight.

That this methodology is used today by the world's largest airlines for day to day planning, as well as multi-billion dollar decisions, highlights the robustness of the methodology and the confidence placed in the methodology by airlines.

3.2 Market demand data source

SeaburyAPG has used IATA PaxIS market size and passenger fare data throughout this analysis, to forecast the passenger and market share impact of the proposed schedule, and has not received any passenger or fare data from either airline. The International Air Transport Association (IATA), the industry body for airlines, produces PaxIS data from over 400 airlines and 87 IATA Billing and Settlement Plan (BSP) offices to create a demand database with over one million O&D's.

IATA PaxIS Plus data contains sufficient details from individual tickets to accurately develop historic demand patterns. Details in the data include:

- Agency, country and region of ticket issuance
- Point of origin airport, true origin airport, connecting airport(s) and final destination airport
- Fare category: first, business, full economy, discounted economy and others
- Average fare value: in USD or EUR
- Month of ticket issuance and month of travel

Two caveats with IATA PaxIS worth noting are that it does not contain point of sale data from the USA, which would have negligible impact on New Zealand - Singapore traffic flows. The impact of this, if any, would be to slightly understate any stimulation and passenger growth resulting from the strategic alliance.

The second caveat is that the data does not include actual sales through the Amadeus GDS. An algorithm is used to derive estimated market demand for this distribution channel. The impact of using estimates instead of actual data is hard to determine, however IATA PaxIS Plus data is widely used by airlines as the industry standard source of demand data for planning purposes despite this caveat.

Despite these caveats, to ensure consistency of data between the alliance parties and other airlines, we have used IATA PaxIS Plus data for the analysis in this report, rather than the parties' own data.

The data used for the analysis was 12 months to August 2013 and no adjustments for any reason, i.e. future market growth, were made to the data.

3.3 Market Stimulation

SeaburyAPG has applied the standard QSI method of market stimulation which is based on a market stimulation factor applied to the percent change in QSI values on an O&D basis. This is based on the logic that market stimulation due to increased service, either in the form of additional seats or added connectivity and codeshare offerings, is a function of many consumer related factors. Most of these factors are rather intuitive and in the case of codeshare arrangements include the following:

- Ease of booking specific O&Ds as a result of added consumer access,
- Display of new O&Ds created by the underlying overlap of the networks in global distribution systems,
- Increased awareness of the O&D due to joint selling and promotion,
- Added marketing which generally accompanies new codeshares and alliances,
- Lower fares as a result of increased competition on newly created itineraries.

As can be expected from the underlying reasons for market stimulation, the growth in the market following the introduction of a new service or codeshare tends to occur in all O&Ds and especially in secondary O&Ds that receive a disproportionate share of added exposure.

SeaburyAPG has developed market stimulation models across numerous regions in multiple projects, some of which are given below:

- SeaburyAPG developed a market size stimulation model for use by a major global alliance for forecasting passenger traffic for future periods which takes into account the impact of schedule/service level changes
- SeaburyAPG developed market size stimulation models for one of the world's largest airlines to forecast industry O&D market sizes based on changes in future schedules
- SeaburyAPG developed market size stimulation models for use by a major aircraft manufacturer to determine market stimulation for fleet-planning studies.

SeaburyAPG market stimulation models use the following mathematical formulation:

*Percent change in Passengers = α * (Percent change in QSI)*

Where α is the market stimulation factor

For the calibration of market stimulation models a regression analysis is carried out to determine the effect of change in QSI (service) relative to the change in passengers within a region or between regions. Two primary sources of data are used to do this:

1. *O&D Passenger market size:* IATA Pax-IS Plus market size data is used for the purpose of determining the O&D based market sizes for all markets each region. This market size data reflects the demand on a true origin-destination basis.
2. *QSI/service levels:* QSI information is derived from published airline schedules and SeaburyAPG models to build itinerary information. Calibrated QSI factors determine the attractiveness of different service offerings e.g. a non-stop receives a much higher preference than a one-stop service.

SeaburyAPG has used this methodology in numerous projects across multiple regions and found a range of market stimulation factors from 0.30 to 0.47. An example of this is the New Zealand - Australia market which has a market stimulation factor of 0.44 with an R-squared "goodness of fit" statistic of 86% when applied to individual O&Ds. The calibrated stimulation factor had a 95% confidence range from 0.435 to 0.451. Appendix 3 contains details of this regression analysis.

Due to the high proportion of connecting passengers on the flights to be analyzed (approximately 73%) and the significant proportion connecting beyond Asia (approximately 48% of forecast codeshare passengers) a value for one specific market may not be appropriate. Therefore a very conservative approach was applied to stimulation, and a value at the lowest end of the market stimulation range was used. For the purpose of this analysis a market stimulation value of 0.30 was used.

SeaburyAPG regularly calibrates Air New Zealand's forecasting model (SAPGNet) which is used for planning purposes and is licensed from SeaburyAPG. The calibration for this model uses market size data which is a combination of Air New Zealand's own onboard passenger data at an O&D level and industry market size data for markets not served by Air New Zealand. SeaburyAPG's extensive knowledge of the market was applied in the determination of the market stimulation factor.

3.4 SAPG network models

SeaburyAPG has developed proprietary network models for the evaluation of airline network and partnership scenarios. These models have been proven to be robust and accurate over hundreds of network projects with numerous airlines in all regions of the world. SeaburyAPG models are based on QSI methodology and have been enhanced continuously over 15 years.

A selection of clients using SeaburyAPG tools for planning purposes include some of the world's largest airlines, alliances and OEM's: International Airline Group (British Airways, Iberia, Vueling), Southwest Airlines, Star Alliance GmbH and Airbus plus more than 20 other clients.

4.0 Results of the analysis

SeaburyAPG has used proprietary network tools and considerable airline experience in the evaluation of the proposed schedule provided by Air New Zealand. The impact on the market and the partnership between Air New Zealand and Singapore Airlines is driven by three key aspects of the schedule:

1. The entry of Air New Zealand into the Auckland - Singapore market
2. The increase in total nonstop capacity in the New Zealand - Singapore market
3. Codeshare by both airlines on each other's flights, notably Air New Zealand codeshare on Singapore Airlines and Silk Air flights beyond Singapore

4.1 The current market situation

Market size and capacity

The New Zealand - Singapore market size can be defined in two ways:

1. The number of passengers on nonstop flights between New Zealand and Singapore, including both local passengers and those connecting beyond New Zealand or Singapore (to destinations such as the United Kingdom)
2. Passengers that start or end their journey in New Zealand or Singapore only, regardless of how they travel, i.e. nonstop or via connecting point such as Australia

1. Passengers travelling on non flights between New Zealand and Singapore

The annual market size, defined as passengers flying nonstop between New Zealand and Singapore, is 533,897 per year based on IATA PaxIS data to August 2013. This includes all passengers travelling nonstop between the two countries (both local and connecting).

The Auckland - Singapore market is currently served nonstop by two airlines: Singapore Airlines and Jetstar with a passenger share of 79.9% and 20.1% respectively on the route (based on IATA PaxIS data). The Christchurch - Singapore market is served nonstop by Singapore Airlines only.

The current schedule (in November 2013) for these two airlines is:

i. Auckland - Singapore

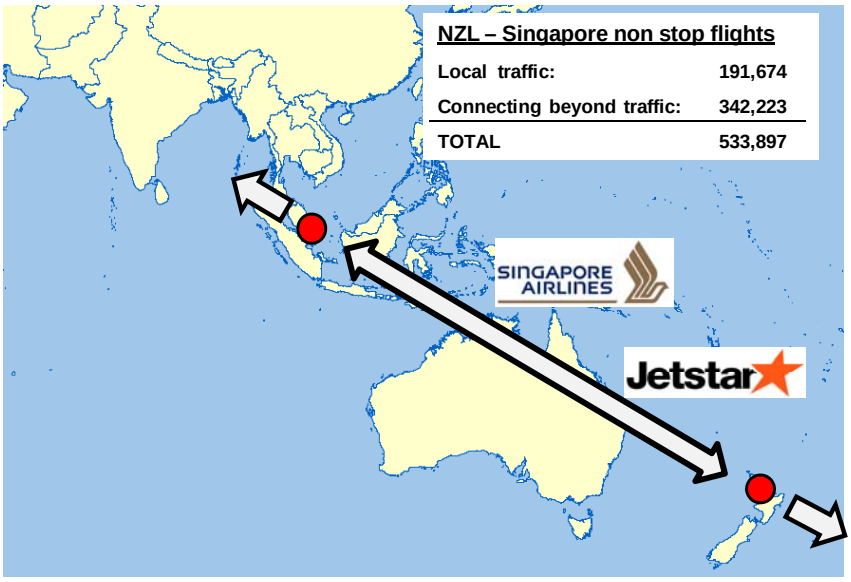
Singapore Airlines	7 flights per week with B773 aircraft (278 seats)
Singapore Airlines	5 flights per week with B772 aircraft (285 seats)
Jetstar Airlines	3 flights per week with A330 aircraft (303 seats)

ii. Christchurch - Singapore

Singapore Airlines	7 flights per week with B772 aircraft (285 seats)

Based on IATA PaxIS data the market size of 533,897 was made up of 191,674 local passengers starting and ending their journey in New Zealand or Singapore. The remainder of

this market, 342,223 passengers (64% of the market), connected beyond Singapore or New Zealand.



For Singapore Airlines Auckland and Christchurch represent 'spokes' from its home 'hub' in Singapore. Passengers can connect beyond Singapore on the airlines extensive network throughout Asia, the Middle East and Europe, as well as on Star Alliance partner airlines.

This business model, which captures a large amount of connecting passengers, allows the airline to expand faster and operate routes that would otherwise not be viable without connecting passengers. For Singapore Airlines the amount of capacity in the New Zealand market (19 flights per week), as well as operating the only nonstop long haul flight out of Christchurch, is dependent upon the volume of connecting passengers beyond Singapore.

Jetstar also has a 'hub' in Singapore and leverages the Jetstar network in Singapore, as well as Qantas flights to Europe (Jetstar also formerly used British Airways flights from Singapore to London for connecting passengers). Qantas also codeshares on the Jetstar flight.

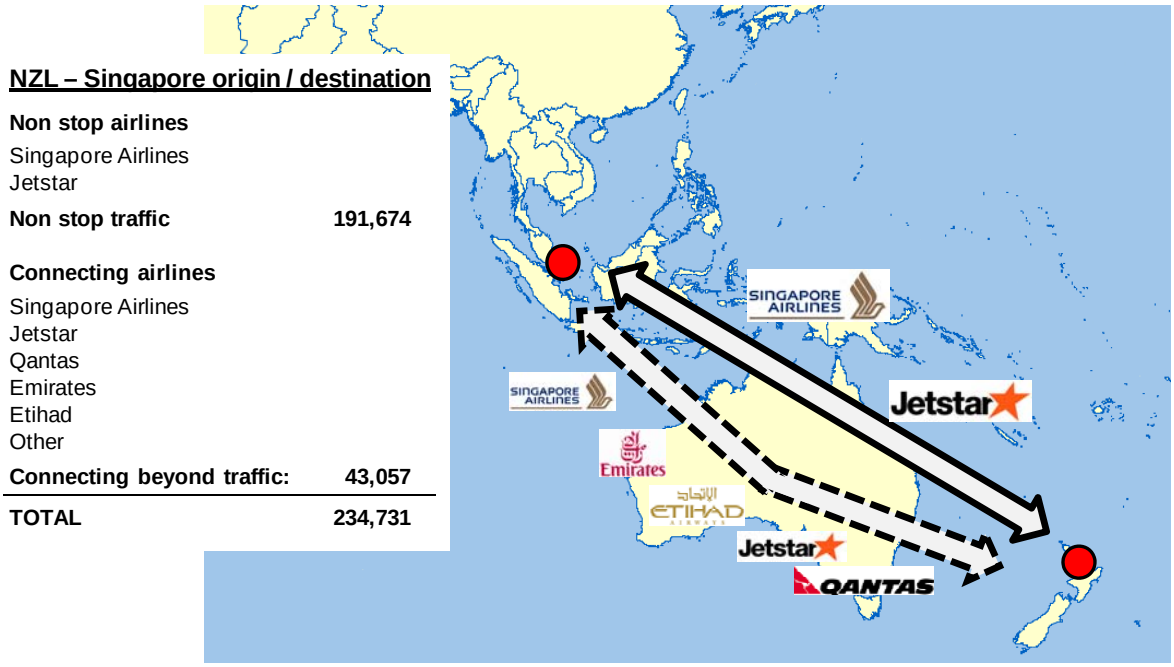
2. Passengers starting or ending their journey in New Zealand and Singapore

The 'true O&D' market size, defined as passengers starting or ending their journey in New Zealand and Singapore (whether on nonstop or connecting flights) is significantly lower than the previous market definition (of all passengers between New Zealand and Singapore). The true O&D market also includes passengers that connect via a third country, such as Australia.

IATA PaxIS data reports this market size as 234,731 passengers in the 12 months to August 2013 (in contrast to the 533,897 that travel on nonstop flights between the two countries). Singapore Airlines and Jetstar have an 83% share of this market (194,176 passengers) as they

have a combined total of 191,674 nonstop and 2,502 connecting passengers. The remaining 17% market share was spread amongst multiple other airlines:

- Qantas via Sydney, Melbourne and Brisbane
- Emirates via Brisbane
- Etihad via Brisbane
- Malaysian Airlines via Kuala Lumpur



4.2 The Air New Zealand proposed schedule

The schedule provided by Air New Zealand contains the following changes to the Air New Zealand and Singapore Airlines route networks:

a. Air New Zealand launches service in the Auckland - Singapore market with an annual capacity of 227,136 seats

b. The combined capacity of Singapore Airlines and Air New Zealand is increased by 149,188 seats per year (27%)

i. Air New Zealand adds 227,136 seats per year
ii. Singapore Airlines capacity is reduced by 77,948 seats per year

c. Codeshare on Singapore Airlines and Silk Air would provide Air New Zealand with access beyond Singapore to new destinations primarily in South East Asia, India, South Africa and Europe not currently in the Air New Zealand network. Using a maximum connection time of six hours (which is a standard industry definition for this type of analysis) Air New Zealand would have access to 58 new codeshare destinations, of which, 41 would be served in both directions (applying the six hour rule).

New destinations connected to the Air New Zealand network via Singapore Airlines and Silk Air:

	City	Country
1	Ahmedabad	India
2	Amsterdam*	Netherlands
3	Athens	Greece
4	Barcelona	Spain
5	Bandung*	Indonesia
6	Kota Kinabalu	Malaysia
7	Bangalore*	India
8	Mumbai*	India
9	Balikpapan*	Indonesia
10	Bandar Seri Begawan*	Brunei
11	Kolkata*	India
12	Paris*	France
13	Cebu*	Phiippines
14	Jakarta*	Indonesia
15	Coimbatore*	india
16	Colombo*	Sri Lanka
17	Chiang Mai*	Thailand
18	Kochi*	India
19	Copenhagen*	Denmark
20	Dhaka*	Bangladesh

	City	Country
21	Da Nang	Vietnam
22	Delhi	India
23	Dili*	East Timor
24	Moscow	Russia
25	Denpasar Bali*	Indonesia
26	Davao*	Phiippines
27	Dubai	United Arab Emirates
28	Rome	Italy
29	Hanoi*	Vietnam
30	Tokyo Haneda*	Japan
31	Hyderabad*	India
32	Yogyakarta	Indonesia
33	Kuching	Malaysia
34	Medan*	Indonesia
35	Kathmandu*	Nepal
36	Kuala Lumpur*	Malaysia
37	Langkawi	Malaysia
38	Chennai*	India
39	Manado*	Indonesia
40	Male*	Maldives

	City	Country
41	Manila*	Philippines
42	Milan*	Italy
43	Penang*	Malaysia
44	Pekanbaru	Indonesia
45	Palembang*	Indonesia
46	Phnom Penh*	Cambodia
47	Siem Reap*	Cambodia
48	Yangon*	Myanmar
49	Ho Chi Minh*	Vietnam
50	Solo City*	Indonesia
51	Semarang*	Indonesia
52	Surabaya	Indonesia
53	Taipei*	Taiwan
54	Thiruvananthapuram*	India
55	Ujung Pandang	Indonesia
56	Koh Samui	Thailand
57	Vishakhapatnam*	India
58	Zurich	Switzerland

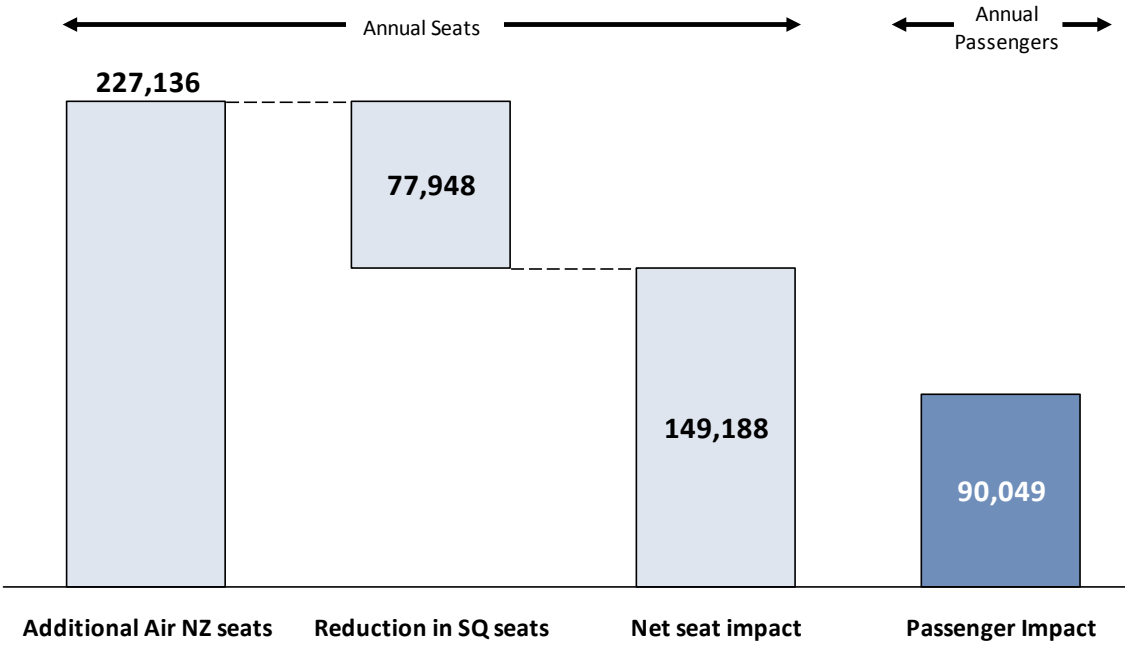
**Denotes return service under the partnership*

4.3 Schedule impact

The combination of two drivers, additional Air New Zealand capacity and an extensive codeshare partnership with Singapore Airlines, is forecast to result in an increase in the size of the market travelling between New Zealand and Singapore.

For Air New Zealand and Singapore Airlines, the combined net increase in seats of 149,188 per year is forecast to result in an additional 90,049 passengers per year travelling on either Air New Zealand or Singapore Airlines flights between New Zealand and Singapore.

Impact of the proposed schedule on Air New Zealand and Singapore Airlines



Impact on Air New Zealand and Singapore Airlines

Using the QSI forecast methodology and PaxIS data we can forecast the impact on load factors of both airlines (note these are Seabury forecasts based on IATA PaxIS data and are not based on either airlines internal data). The forecast for the newly launched Air New Zealand flight from Auckland to Singapore is an annual average load factor of 75%. A typical industry breakeven load factor percentage on long haul flights is low to mid 70's which indicates this flight should be two to three percentage points above breakeven and therefore a sustainable service.

The forecast average load factor for Singapore Airlines on the Auckland - Singapore route is 79% which also implies a sustainable operation.

On the Christchurch - Singapore route the average load factor is forecast to increase by 0.7% to 80% due to the partnership with Air New Zealand.

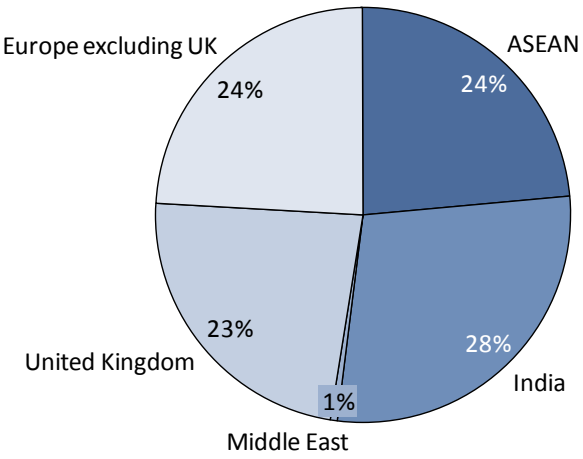
Mix of passengers

The increase of 90,049 passengers generated by the Air New Zealand and Singapore Airlines partnership and capacity increase are forecast to be heavily skewed towards connecting, versus local, passengers:

- 27% are forecast to be 'local' passengers, starting or ending their journey in New Zealand or Singapore
- 73% are forecast to connect either beyond Singapore or New Zealand

The impact of the codeshare between the two airlines, and the new destinations to which Air New Zealand will have a codeshare connection, drives a significant amount of the connecting traffic forecast. 57% of the forecast passengers travelling on Air New Zealand codeshare beyond Singapore are forecast to travel to the 58 new destinations to which Air New Zealand currently has no codeshare or online presence. These connecting codeshare passengers are forecast to travel beyond Singapore to the following regions:

Mix of destinations beyond Singapore for Air New Zealand codeshare passengers

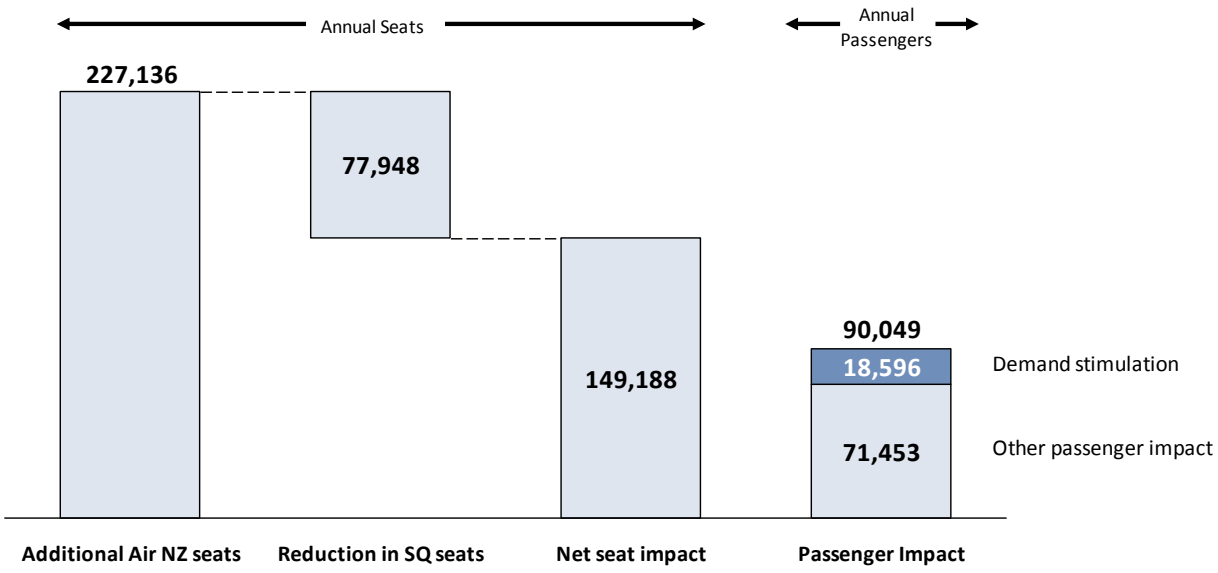


Market stimulation

The net increase in seats between Air New Zealand and Singapore Airlines is 149,188 per year on the Auckland - Singapore route. The forecast increase in passengers travelling on the Auckland and Christchurch to Singapore routes is forecast to be 90,049 per year. These passengers are made up of:

- Demand stimulation resulting from the increase in capacity between Air New Zealand and Singapore Airlines and new codeshare flights beyond Singapore of 18,596
- Existing market demand that switches from an alternative routing and now travels on Air New Zealand or Singapore Airlines of 71,453

Impact of the proposed schedule on Air New Zealand and Singapore Airlines



The demand stimulation forecast was calculated using a market stimulation factor at the lowest end of the 0.47 - 0.30 stimulation range of 0.30 and applied to the QSI increase in the new schedule.

The result of this forecast is that the 149,188 additional seats in the market, and new the codeshare partnership, are forecast to result in demand stimulation (market growth) between New Zealand and Singapore of 18,596 per year travelling on Air New Zealand or Singapore Airlines flights and either terminating in Singapore or New Zealand, or connecting to beyond destinations.

Based on SeaburyAPG's knowledge of, and experience forecasting, the New Zealand market this stimulation forecast is line with the magnitude of stimulation that could be expected from the schedule provided.

4.4 Other observations

Based on industry knowledge and previous project experience SeaburyAPG has identified other potential implications from the Air New Zealand - Singapore Airlines alliance:

i. Industry consolidation and alliances are an industry wide trend. Air New Zealand's participation in alliances allows the airline to compete with much larger airlines and reach markets it could not otherwise serve

ii. The scenario analysed proposes a significant increase in capacity in the New Zealand – Singapore market that is unlikely to occur without this alliance

iii. Air New Zealand has previously terminated services to Singapore from both Auckland and Christchurch due to profitability. It is unlikely Air New Zealand could re-enter this market and sustain services without an alliance with Singapore

iv. In this scenario Singapore Airlines operates the Auckland - Singapore route in the peak season with an A380 aircraft, which is unlikely to occur without an alliance due to the risk in filling the additional capacity

v. The alliance would connect Air New Zealand to numerous new destinations throughout Asia that are currently not part of the Air New Zealand network

    i. Making travel between these New Zealand and the new destinations easier

    ii. Providing an incentive for Air New Zealand sales and marketing activity in these markets

5.0 Conclusion

Air New Zealand has provided SeaburyAPG with a schedule scenario to analyze and determine the impact on the market of a proposed strategic alliance with Singapore Airlines. The schedule includes an alliance relationship between Air New Zealand and Singapore Airlines involving extensive codeshare and a combined increase in capacity in the New Zealand - Singapore market of 149,188 seats per year.

The proposed schedule would give Air New Zealand access, via codeshare on Singapore Airlines and Silk Air, to 58 destinations in which it has no market presence today, and importantly, 41 of these destinations would offer service both ways under the proposed strategic alliance.

The results of the analysis forecast that the passenger demand travelling between New Zealand and Singapore, including onward connections, would be stimulated by 18,596 passengers per year and that total growth in this market would be 90,049 passengers per year.

Air New Zealand's flights are forecast to achieve a load factor of 75%, two to three percentage points above a typical industry breakeven load factor on such a flight. Air New Zealand would be reliant on passengers connecting beyond Singapore, with the analysis forecasting that 65% of passengers on Air New Zealand's Auckland - Singapore flights would be passengers connecting beyond Singapore. Air New Zealand's codeshare with Singapore Airlines would result in 57% of Air New Zealand's codeshare passengers travelling to the 58 new codeshare destinations and would be passengers Air New Zealand would otherwise not serve with the current network.

SeaburyAPG notes that Air New Zealand has previously operated both Auckland - Singapore and Christchurch - Singapore services, and terminated these services publicly stating they were unprofitable and unsustainable. The results of the analysis forecast that Air New Zealand would therefore be reliant on a strong partnership to sustain service in the market, i.e. without a partnership with Singapore, Air New Zealand could not serve this market.

Appendix 1

SeaburyAPG Qualifications and Relevant Expertise

SAPG, formed in 1997, is a highly specialized management consulting firm focusing exclusively on aviation planning and management. SAPG has worked on hundreds of projects providing network and fleet planning consultancy to many of the world's largest airlines, airports and aircraft manufacturers. SAPG has internally developed all the tools and technology required to optimize networks and fleets. SAPG proprietary models include SAPGNet, a network forecasting tool, SAPGAlliance, a global alliance and merger/ acquisition evaluation tool and SAPGFam, a fleet optimization model.

The *APGNet* model is a QSI-based forecasting tool generally used to estimate the impact of capacity changes and/or codeshare alliances on traffic levels and carrier market shares. The *APGNet* model is used by many of the World's leading airlines and has recently been used on consulting projects with airlines such as United Airlines, Cathay Pacific, US Airways and Thai Airways.

In brief, the *APGNet* methodology uses airline schedules and market size data as inputs, and then applies QSI values to each airline based on the level of service in the market. From this 'base' passenger and revenue shares can be derived. Changes in QSI resulting from changes in aircraft size, number of flights, new routes or new codeshares are then applied to forecast new passenger and revenue market share and the impact on the total market size.

SAPG clients include many of the world's largest airlines, global airline alliances, aircraft manufacturers and investment companies. A selection of SAPG projects in 2010 include:

- Developing long term network plans for large airlines in the Middle East and the USA,
- Working with a major American airline and a large Asian airline to develop respective fleet plans and place aircraft orders with a list price of US$22 billion,
- Financial due diligence of a large Asian airline for an investment group evaluating a potential equity stake,
- Evaluation of potential new members for a global airline alliance.

In addition, SAPG's network planning tools and data are used on an ongoing basis by over 50 airline clients around the World.

This particular analysis has been conducted by the Managing Director and co-head of SAPG, Dr. Stephen Still, and Principal, Maxwell Reilly. Dr. Still has more than 30 years experience in consulting and management of transportation systems, including 25 years hands on experience in aviation planning. Both Dr. Still and Mr. Reilly have extensive knowledge of the trans-Tasman market where they have previously worked on projects with Qantas, Ansett Australia and Air New Zealand. Mr. Reilly was also previously employed by Ansett Australia and Air New Zealand, amongst other airlines.

Appendix 2

Biography of Dr Stephen Still

Dr. Stephen Still is Managing Director and co-head of Seabury Airline Planning Group, LLC, which he co-founded in 1997. He has more than 30 years experience in consulting and management of transportation systems, including 25 years of hands-on experience in aviation planning. Dr. Still has managed aviation projects worldwide including assignments for airlines, equipment manufacturers, and financial advisory firms. Recent projects include wide body fleet analysis leading to a multi-billion dollar fleet order, optimization of network structure for a major U.S. carrier, development of new planning methods for a large Asian airline, and an assessment and outlook for the U.S. Dr. Still specializes in a variety of corporate planning functions including route and fleet strategy, financial analysis, and revenue management. In addition, Dr. Still led the development of Seabury APG's analytical tool set including SAPGNet, SAPGFam, and SAPGAlliance models that are used extensively by airlines, global alliances and aircraft manufacturers to optimize networks, alliances, and fleets.

Prior to SAPG, Dr. Still was Director, Corporate Planning, with US Airways, Inc. responsible for development of strategic initiatives for routes, fleets and alliances. He was responsible for formulating and coordinating the airline's fleet plans, including analysis leading up to a multi-billion dollar fleet purchase.

Prior to US Airways, Dr. Still was Manager of Domestic Planning at United Airlines, Inc. where he was responsible for developing United's five-year route and fleet plan. Other positions at United included Manager of Airline Profitability Analysis where Dr. Still was responsible for financial and economic analyses of complex fleet and route decisions including fleet acquisition and route purchases. Dr. Still started at United in the Operations Research group where he designed and developed advanced network optimization tools.

Dr. Still is a frequent presenter at airline and transportation conferences, and teaches professional courses for the International Air Transport Association (IATA), and holds a Ph.D. in Civil Engineering and Operations Research from Princeton University with a specialty in Transportation Systems and Economics. He earned a B.S. in Engineering from the State University of New York at Buffalo, magna cum laude, with concentration in transportation planning. He has also completed courses in advanced demand modeling at the Massachusetts Institute of Technology.

Biography of David Bental

David Bental is Managing Director and co-head of Seabury APG, which he co-founded in 1997. Mr. Bental has extensive experience in strategic planning and financial analysis for the aviation industry. He has managed projects for large carriers in Asia, Europe and the United States, and specializes in formulating airlines' strategic direction, focusing the resources of their route planning departments, and developing and utilizing modern planning tools. In addition to route analysis, Mr. Bental has participated in deregulation and alliance work for major carriers worldwide.

Before joining Seabury APG, Mr. Bental was Director of Route Strategy for US Airways, Inc. Some of Mr. Bental's major projects included rationalizing the carrier's route structure leading to US Airways' strong profitability in the late 90's, overhauling the airline's profitability system to include beyond profitability, increasing asset utilization, improving revenue generation, and creating advanced planning tools. In addition, Mr. Bental was responsible for supporting merger and alliance discussions between US Airways and other major domestic and international carriers.

Prior to US Airways, Mr. Bental served in the Planning Department of United Airlines, Inc., where he analyzed new market opportunities and alternative network structures. Mr. Bental's many projects included assessing the profitability of United's expansion into Latin America, performing key analysis for development of United's five-year strategic plan and analyzing revenue synergies derived from international alliances. Mr. Bental also worked for American Airlines, Inc. in both financial and planning capacities. While in the Finance Department, he worked extensively with American's unit revenue and cost measures. On the planning side, Mr. Bental was responsible for both the profit plan and five-year plan of American's largest hub.

Mr. Bental received a B.A. in Economics, summa cum laude, from the University of California, Los Angeles, and holds an M.B.A. in Finance and Statistics from the University of Chicago.

Biography of Maxwell Reilly

Maxwell Reilly is a Senior Vice President with Seabury Airline Planning Group with responsibility for advising airline and airport clients on strategic and network issues. Mr. Reilly has worked with major European, Asian, Middle Eastern and African carriers to develop long term network strategies and optimize their route networks. Most recently Mr. Reilly managed a long term network strategy project for a large Middle Eastern carrier. Previous to this Mr. Reilly was seconded for an extended period to South African Airways to manage their Network Planning and Network Strategy departments and provide analysis of potential codeshare and joint venture partners.

Prior to SAPG Mr. Reilly worked as Regional Director Network Planning at Star Alliance GmbH based in Frankfurt, Germany. In that role, he was responsible for managing Network Planning and Schedule Management committees, consisting of representatives from 18 Star Alliance airlines. He was also seconded to Thai Airways for an extended period to lead a Star Alliance project developing Thai Airways hub operation in Bangkok, Thailand. Mr. Reilly also undertook route planning projects for several Star Alliance airlines and was responsible for analyzing the value of potential new member airlines to the Alliance.

Prior to joining Star Alliance, Mr. Reilly held the position of Senior Consultant at Network Economic Consulting Group based in Canberra, Australia. Mr. Reilly's projects at Network Economic Consulting Group included seeking approval by the Australian Government for the renewal of the Qantas and British Airways joint service agreement and preparation of an application by Qantas and Air New Zealand for a proposed merger.

Prior to the Network Economic Consulting Group, Mr. Reilly was the Network Planning Manager at Air New Zealand based in Auckland, New Zealand, responsible for the design and implementation of the International schedule. Mr. Reilly also participated in Air New Zealand's proposed merger with Qantas, forming part of the dedicated Air New Zealand analytical and negotiating team. Mr. Reilly has also held the position of Network Planning Manager at Air New Zealand Ansett based in Melbourne, Australia.

Before joining Air New Zealand Mr. Reilly held positions in financial and analytical roles at Diageo and ACNeilsen in the United Kingdom and DB Breweries in New Zealand.

Mr. Reilly is a frequent presenter at airline and transportation conferences and holds a degree in Commerce from the University of Auckland and an MBA (with Distinction) from the University of Oxford.

Appendix 3

Market Stimulation Model Calibration

Stimulation model calibrations for the New Zealand - Australia and Asia - Europe markets are detailed below.

Example: New Zealand - Australia market

The calibrated regression model had an adjusted R-sq of 0.86 and the model as a whole and its individual variables satisfy the criteria of statistical significance.

The market stimulation factor is 0.44 (with a lower 95% confidence level of 0.435 and upper 95% confidence level of 0.451).

The full output of the New Zealand - Australia regression model is given below:

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.927082							
R Square	0.859481							
Adjusted R Square	0.858934							
Standard Error	1.88458							
Observations	1830							
ANOVA								
	df	*SS*	*MS*	*F*	*ignificance F*			
Regression	1	39732.37	39732.4	11187	0			
Residual	1829	6495.951	3.55164					
Total	1830	46228.33						
	Coefficients	*andard Er*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
%chgQSI	0.443311	0.004191	105.769	0	0.435091	0.4515316	0.43509	0.451532