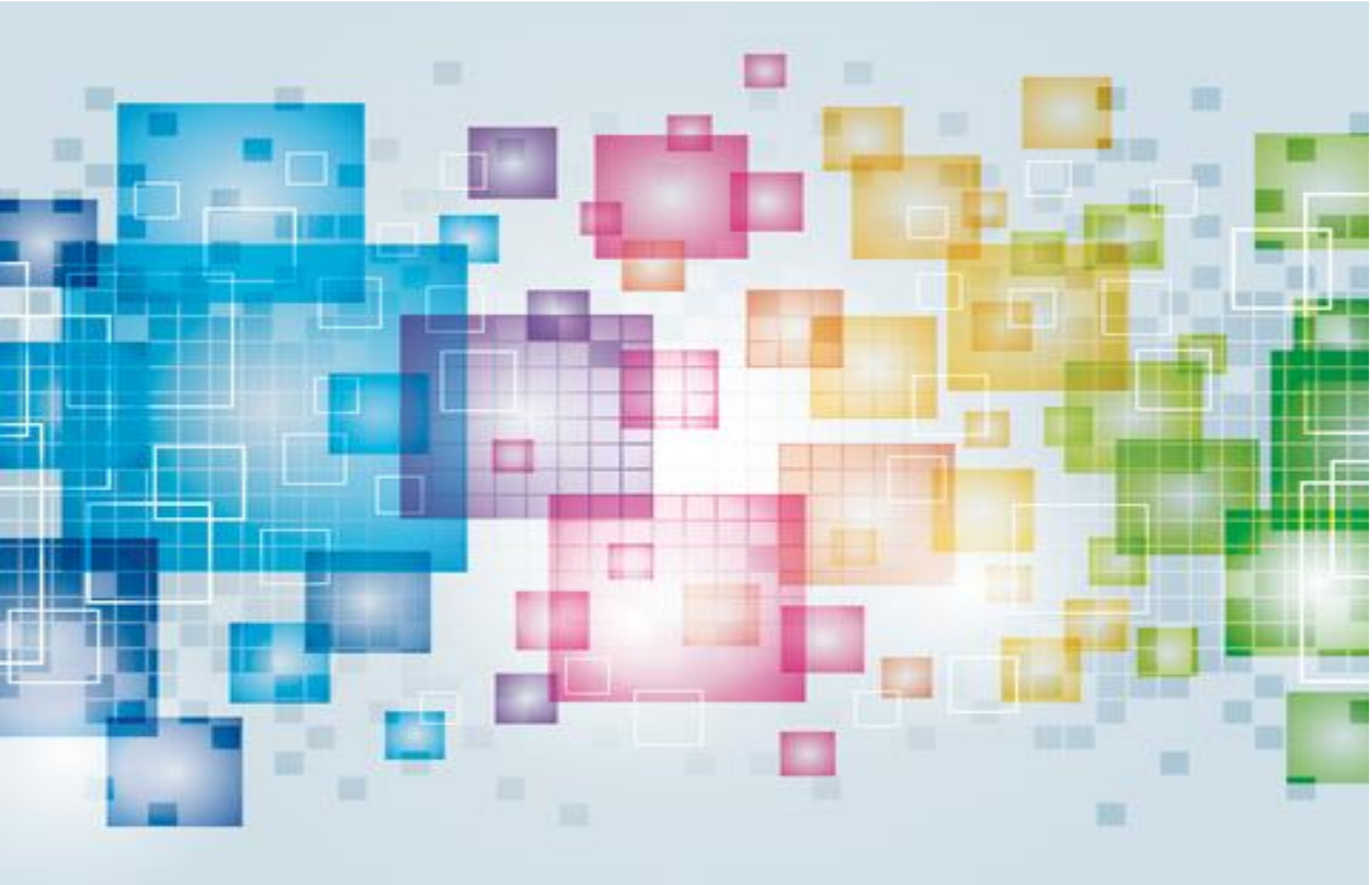

Southern Link

The potential to develop a global value chain

November 2021

About NZIER

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Key points

Valuing the opportunity

This report provides a preliminary estimate of the potential value to New Zealand of the Southern Link trade route between Asia, New Zealand, and South America.

It also examines some of the challenges that need to be overcome before all the potential benefits can be captured.

Increased interconnectivity will drive further economic activity

The Southern Link is an extension of a global value chain (GVC) that involves the routing of multi-modal freight and passengers between ASEAN–North Asia and South America via New Zealand. In the COVID recovery period, the Southern Link creates a positive business environment that:

- Establishes New Zealand in the middle of the Southern Link GVC. Being in the middle of a GVC offers value creation opportunities relative to being located at the end of a GVC, i.e. businesses are closer to the final consumer. This is an unusual situation for New Zealand since we tend to be at the end of a GVC, a long way from markets with constrained opportunities. This situation merits study.
- Takes advantage of the fast-growing e-commerce trade that could potentially drive the Southern Link interconnectivity growth and trade linkages between Asia and South America. Brazil's large consumer market is the main target for increased e-commerce traffic.
- Takes advantage of increasing trade between Asia and South America and further interconnectivity between New Zealand and South America. This is likely to deliver benefits for all participants: Asian, South American and New Zealand based businesses. It could also increase already strong interconnectivity between Asia and New Zealand.

The interconnectivity that can be generated by the Southern Link has a number of key attributes and potentially has multiple benefits:

- **Fostering growth in e-commerce trade**. Routes between Asia and South America along the Southern Link can be quicker, less congested, and price competitive relative to alternative routes (see Appendix A). Further New Zealand has two deep water ports, which means bimodal options for freight are available (note that Australian East Coast Ports are currently being upgraded, these upgrades are expected to be completed in 2023).[1] Capitalising on these advantages by developing efficient and effective hubbing facilities (including co-location of air and sea freight) in New Zealand could turn this comparative advantage into a competitive advantage that other competitors are unable to match. New Zealand is an ideal staging post for e-commerce hubbing infrastructure to service consumers in South America, Australia, and the Pacific.[2]

1 See for example, https://transport.vic.gov.au/ports-and-freight/commercial-ports

2 This is not a given. Australia could also deliver the same sort of capability but would have to overcome congestion issues around airports and higher costs (wage rates in Melbourne and Sydney are much higher than other parts of Australia and New Zealand).

- **An increase in tourism**. Increased connectivity will allow for more tourists to travel to New Zealand, South America, and Asia. It also provides for more options that make all three destinations more attractive. This is likely to increase the number of passengers over and above what would be expected over time.
- **A diversification in education exports**. South America is a small market for New Zealand education services currently. Increased connectivity is likely to increase the interest of prospective students from South America. This could also apply to courses involving Asian students – a much larger market.[3] While one of the biggest draw cards to New Zealand is its English-speaking population, this type of strategy could diversify their student base by:
  - Development of shorter courses including the option of MBA mini electives.
  - Combining education with other recreational activities (possibly by partnering with private providers).
- **Dispute settlement and other services**. Increased trade and connectivity between New Zealand and South America will heighten the interest of South American businesses in New Zealand. This could include:
  - The development of New Zealand as a dispute services hub where South American and Asian firms can settle their business differences in an effective and efficient way.
  - Increased business for New Zealand based legal and accounting services that improve effectiveness and efficiency of trade along the Southern Link.
  - Location of Asian/South American firms in New Zealand to coordinate their Asian/South American activities given favourable time zones (i.e. both markets can be communicated with during office hours) and geography (i.e. one plane trip from the market and head office).
  - Further administrative changes to regulations (potentially the creation of a free trade zone) if it can be shown that products require further transformation closer to the market, i.e. re-packaging, reformulation, or other transformation processes.[4]

Other benefits may arise or might happen whether or not the Southern Link is developed in its current form. These could include but not limited to:

- Increased shipping connections between South America, New Zealand, and Asia as trade grows. This could drive further opportunities.
- Increased supply chain resilience for New Zealand. With limited manufacturing capacity and capability being in the middle of a global supply chain may:
  - Increase New Zealand access to critical goods such as PPE.
  - Increase New Zealand's manufacturing capability as new opportunities arise for reformulation, repackaging, and manufacturing.

[3] Increasing links between Asia and South America will increase the opportunities for jobs in South America for Asian companies. New Zealand is well placed to provide Asian graduates for those jobs, since English will be the common language and the increasing links between South America and New Zealand because of the Southern Link.

[4] New Zealand's geographical position and its deep-water ports mean that it could be in a good position to move general freight that requires further transformation. Therefore, we would not want to rule out further modification to hubbing facilities.

- The decision by Microsoft to locate a data centre in Auckland and Amazon Web Services locating in New Zealand may assist in the development of a service industry that could support Southern Link trade.

There are also some environmental benefits:

- The Southern Link can be faster and is less congested than other routes reducing fuel burn for aircraft. This is likely to reduce overall emissions since the Southern Link is the most efficient route to move e-commerce goods "on average" between Asia and South America (relative to other routes).[5] Planes are also expected to become more fuel-efficient, e.g. Dreamliners are 20% more fuel-efficient than comparable airlines, but this will occur on all routes.
- A good proportion of the e-commerce trade shipped to New Zealand will replace empty containers. A large number of empty containers are needed in New Zealand to ship bulk commodity products from New Zealand to its markets. This means the shipping of e-commerce goods to New Zealand will only have a small impact on the shipping carbon e-commerce footprint. It will increase environmental benefits with the conversion of empty containers to full containers.

The analysis considers that the Southern Link will develop over a number of years and that the benefits will not be captured immediately.

There are challenges

Challenges will need to be overcome before the full benefits are captured. These include issues that:

- New Zealand can control.
  - Ensuring that trade policy consistency is maintained. This is particularly important since New Zealand's participation in APEC focuses on recovering from COVID-19[6], increasing inclusion and sustainable recovery, and pursuing innovation and a digitally enabled recovery. This fits with Southern Link objectives of increasing interconnectivity that drives business and social opportunities and promotes New Zealand objectives as being traders with the world (trade diversification).
  - Trade diversification could also promote the 'Trade for All' agenda since it may assist Micro, Small and Medium Enterprises (MSMEs), indigenous firms, and women-led firms participate in the services and goods trade that could potentially underpin the Southern Link.
  - Ensuring that e-commerce hubs can establish in New Zealand in ways that allow the free flow of goods and services through New Zealand. Some regulatory changes may be required, but they are not insurmountable.
  - Ensuring the free flow of tourists to New Zealand, South America, and Asia. Consideration of how the processes associated with transit visas for Chinese and selected other Asian nations can be streamlined. In pre-COVID-19 times if you passed through New Zealand a transit visa was required unless you were travelling to Australia, or were from a visa waiver country or a transit visa waiver country. Most

[5] Interview with Asendia.

[6] Helped by New Zealand hosting APEC in 2021.

Asian and South American countries qualify for a transit visa waiver, although Vietnam, China, Laos and Cambodia do not.[7]

  - Increasing already positive approaches to co-ordination between the New Zealand government and education providers to improve the offerings further.
  - Combining tourism (diversification strategies) and educational (micro credentials, short courses, and mini electives for MBAs) offerings in a way that make New Zealand a more attractive tourism and educational destination.
  - Deepening understanding of how dispute settlement institutions can be leveraged to facilitate trade along the Southern Link.
- New Zealand can partly control.
  - Encouraging more interconnectivity between South America and New Zealand since New Zealand already has strong connections with Asia. This involves understanding the needs/drivers of governments and airlines to establish the Southern Link in a post-COVID-19 world.
  - Use of agreements such as Digital Economy Partnership Agreement (DEPA)[8] to underpin the development of the services trade that could potentially be generated by the Southern Link.
  - Use of air service agreements that enable optimal flight times so that aircraft and passenger layovers are reduced.
- Are beyond New Zealand's control.
  - How the US/China relationship develops. This is unknown and likely to have far reaching consequences for world trade.
  - The lack of growth in South American economies. Long term, connectivity will be enhanced by growth in the South American middle class.
  - The impact of COVID on South America.
  - Post-COVID-19 approaches to air travel. COVID-19 has shown that connectivity – both by air and sea – are vital for New Zealand's trading future. New Zealand has managed to cope[9] with increased prices (particularly for air freight) and decreased connectivity (curtailing of air services).[10]
  - The potential for GVCs to be reconfigured in a post COVID world as geopolitical rivalries increase.

There could be costs to New Zealand retailers and increased competition from South American goods and services. Although as internet shopping increases its penetration and retailers have increased their online presence these costs are likely to be much less than thought five years ago. Further competition from South American goods and services is

7 https://www.immigration.govt.nz/new-zealand-visas/apply-for-a-visa/about-visa/transit-visa

8 Connecting New Zealand, Chile and Singapore.

9 Although some businesses have fallen over, and a proportion of firms are struggling given market and logistics difficulties.

10 Although some businesses are now starting to fall over as a result of freight costs (interviewee). We do know that airlines are operating surge pricing regimes for freight. This has not happened before and makes it difficult for businesses to plan ahead.

most likely to come from high value non-perishables.[11] This narrows the range of goods and services that South American and New Zealand firms will compete on.

Table 1 summarises the estimated impacts of the Southern Link. The analysis assumes the economic benefits start slowly in year 3 and build up over time. The analysis considers the effects over 10 years to illustrate the size of the opportunity.

Under conservative assumptions, benefits are mainly driven by e-commerce, tourism, education, and all other services.

Each of the benefit areas set out below is independent of each other. Each benefit area is not contingent on other benefits occurring, e.g. plans for e-commerce activity are well advanced and will occur more quickly than other benefit areas.

Table 1 Summary of benefits

Sector	Share of benefit	Total benefit	Comment
E-commerce	55%-65%		Based on volumes expected, estimates provided by logistics companies
Tourism	20%-30%		Passenger estimates developed by Christchurch Airport
Education	5%-15%		Pre-COVID estimates tempered by longer led times and changing strategies
Business services and other services	2%-10%		New opportunities in New Zealand as trade increases
Total direct benefit (over ten years)		**$NZ 1.87 billion**	
Other benefits to the economy			
Direct employment (hubbing)			Approximately 30 FTEs
Construction		$5 million	
Costs			
Retailers		Not determined	Small cost to retailers offset by a more competitive retail sector and gains to consumers
Increased competition		Not determined	Non-perishable trade from South America
Increased administrative costs for government		Not determined	Government may look to cost recover
Notes (1) No benefits in 2021/2022 March years because of COVID-19. (2) Benefits estimated over 10 years and discounted at 6% (3) Increased connectivity assumption: 1 flight a day to South America.			

Source: NZIER

11 Cost and risks around delivery of perishables means that establishing a durable perishables trade is unlikely. Some Chilean grapes do enter the New Zealand market and under the CPTPP, avocados are possible. However, it is unlikely that large volumes will enter the market particularly as airfreight.

Caveats

The direct benefit is derived from the assumption that increased connectivity (particularly between South America and New Zealand) will drive increases in trade, mainly exports.[12] Our benefit analysis assumes a much lower correlation between connectivity and trade growth than the IATA analysis because of New Zealand's isolation and low population.

The other assumptions are informed from an extensive number of interviews with government and businesses.

The COVID-19 crisis brings considerable uncertainty about baseline estimates, likely impacts, and the extent to which costs and benefits will occur in the timeframes set out in the report.

Setting out the pathway forward

The Southern Link concept is an opportunity to illustrate how New Zealand can assist the recovery of the region in the post-pandemic world. It demonstrates how the 'green shoots' of recovery can drive connectivity and further integration in the region, capitalising on the fast-growing e-commerce trade and placing New Zealand in the middle of a global value chain.

Certainty and timing are key issues for establishing a pathway for growth
More clarity on the COVID-19 situation in South America and further understanding of how the COVID-19 transmission risks can be mitigated is vital. Until these issues can be further understood, it is difficult to see progress in establishing a regular passenger air service link between New Zealand and South America. Although this does not preclude an air freighter service from being established, e.g. there have been flights between South America and Asia during COVID lockdown periods, mainly transporting PPE goods.

Once a clear pathway can be seen through the COVID-19 situation, then actions can be taken that move the Southern Link proposal to a point where consensus between government and business interests that drive beneficial actions around Southern Link facilitation can occur. Specifically, these could involve:

Business

- **Business will need to demonstrate that the Southern Link works**. In the first instance, this could be an air freight only link between New Zealand and South America (this avoids many of the COVID-19 related issues that occur with people movement in the short term). The key issue is regular connectivity. Once regular connectivity is established, the potential for other players to see opportunities increases.
- **To advance the hubbing concept will require a specific proposal by business**. Customs will need to determine the costs, benefits and risks associated with a proposal but have signalled that they will work collaboratively with business on any proposal.

12 https://www.iata.org/contentassets/307646ccaf10488f9ee240c87d8f72dd/value-of-air-cargo-2016-report.pdf

Specific proposals to government ministers

- Once businesses have agreed in principle to actions on the Southern Link then **specific proposals can be put to government ministers on what needs to be done to make it a reality**
- If ministers are supportive of the Southern Link concept, we would encourage government to raise these issues with their counterparts in Asia and South America. This would demonstrate New Zealand’s commitment to the region bringing South America and Asia closer together in the post-COVID-19 era.

Specific E-commerce approvals required

- The establishment of an e-commerce hub once a specific proposal is received.
- Ensure that the e-commerce hub facility has the right regulatory clearances to operate.
- Where overseas consumers change their mind and send product back to the hub in New Zealand refunds or exceptions would be required.

Tourism

The establishment of an e-commerce link is the first step to increasing connectivity between New Zealand and South America. In turn this will stimulate further interest from Asia in the form of regular passenger services through the Southern Link. This can only occur once appropriate management of COVID-19 risks are put in place for tourism to become much more likely.

- Further understanding of the risks and the development of procedures and protocols that set out the costs and benefits of developing a travel bubble with selected Asian nations. Many Asian nations (but not all) have successfully contained the pandemic. New Zealand needs to actively understand which nations it can further connect with and how an ‘Asian bubble’ might work. This is important because it will demonstrate to South American countries what needs to happen before tourists, students, and business people can move freely through the Southern Link
- Initiate discussions on how to streamline transit visas that may be granted to some tourists. At issue are:
  - Finding innovative ways to check the intentions of travellers and mitigate the possibilities of transiters applying for refugee status.
  - Reducing the high cost of transit visas.

Education

- Fine tune the practical approaches (between government and industry) that could be employed to attract students in a more efficient and effective manner.

Disputes' resolution

- Government support for inclusion of dispute resolution clauses in contracts that are entered into by New Zealand based entities that reference the need to have arbitration in New Zealand.
- Standardise wording in some government contracts.

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1 The opportunity

1.1 Product and trade diversification makes the Southern Link attractive

The New Zealand China Council brought together stakeholders, including the Latin America Centre of Asia-Pacific Excellence (Latin America CAPE), to commission an economic study that examines the opportunity of the development of the proposed Southern Link.

At the heart of the Southern Link is the extension of a global value chain (GVC) that involves the routing of multi-modal freight and passengers between ASEAN–North Asia and South America via New Zealand.[13] Elements of the Southern Link include the potential to:

- Ship or airfreight e-commerce parcels from Asia to New Zealand. Airfreight e-commerce parcels between New Zealand and South America, Australia and Pacific. This would involve e-commerce hubbing facilities in New Zealand.
- Increase passengers/tourism between New Zealand, Asia and South America driven by the increased connectivity between New Zealand and South America.
- Increase export education services with South America and Asia.
- Generate services trades such as disputes settlement and supporting legal and accounting services as trade grows. Also, the potential for South American companies to coordinate their Asian activity from New Zealand and vice versa.

The opportunity could drive further dynamic change:

- Increasing the diversification of trade by opening up new markets, particularly but not exclusively in South America. Including:
  - Further diversification of New Zealand's trade offering with ASEAN, Australia, Pacific and North Asia as shipping connections strengthen further.
  - Increased trading activity may increase New Zealand's supply chain resilience. With New Zealand located in the middle of a global value chain, the possibilities for increased access to critical goods such as PPE increases.
  - Enhancing New Zealand's limited manufacturing capacity and capability by creating e-hub opportunities for re-packaging, reformulation, and manufacturing.
- Reinforcing New Zealand's services trade offering. Recent moves by Microsoft (locating a data centre in Auckland) and Amazon Web Services locating in New Zealand may strengthen the Southern Link opportunity.

1.2 The Southern link places New Zealand in the middle of a GVC

The opportunity has two unique and significant points of interest for New Zealand:

- New Zealand has a long history of involvement in GVCs, but typically we are the source country where goods and services are produced. In this situation, it is difficult to add further value since connections with end consumers are limited. Being strategically

13 It is important to note that companies that are potentially involved in the Southern Link are also involved in routes between Europe – Middle East and South America.

located in the middle of a GVC increases the chances of higher returns since we know intuitively that those closer to the market create the most value.

- The major 'play' (but not the only play) is capitalising on fast growing e-commerce markets. While the Southern Link idea can be traced back at least 30 years, e-commerce trade has only recently emerged as an important part of forging interconnectivity.

1.3 Consistency with trade policy objectives is critical

The Southern Link is consistent with trade policy objectives (trade agreements such as the Regional Comprehensive Economic Partnership (RCEP), the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), Digital Economy Partnership Agreement (DEPA), and organisations such as the Asia-Pacific Economic Cooperation (APEC) and the Inclusive Trade Action Group New Zealand (ITAG) since it increases the opportunities for diversification and underpins the broad trade policy objective to be traders with the world.

The Southern Link offers the chance for New Zealanders to be exposed to other views and to broaden our understanding of what being a 'trader with the world' really means, the capabilities required, and the skills needed. Increased trading activities may also support the 'Trade for All' agenda by opening up opportunities for MSMEs, indigenous firms, and women-led firms (particularly in services).

2021 year is the year that New Zealand hosts APEC. New Zealand's priorities are to:

- Work towards free and open trade and investment with the aim of furthering economic integration within the region.
- Increase inclusion by unlocking potential in all members of society.
- Pursue innovation and digitally-enabled recovery.

The Southern Link approach underpins these priorities by stimulating further integration through increased interconnectivity, giving opportunities for all players in the market, and potentially opening up new trade routes based on the fast-growing e-commerce trade.

It is also a chance to connect with societies and cultures that New Zealand has not traditionally connected with – increased connectivity allows businesses to work out how they can drive increases in their own economic activity.

1.4 Turning a comparative advantage into a competitive advantage

The Southern Link is likely only to take a small portion of the e-commerce traffic between Asia and South America. The main routes will still be through the Middle East and Europe. However, the e-commerce trade is growing so fast (accelerated by COVID-19 lockdowns) that even if 15 percent of the e-commerce trade between Asia and South America went through the Southern Link, it would be highly successful.

The strength of New Zealand's comparative advantage is set out in Appendix A. Flight times are comparable with the various competing hub points: London, Madrid, Dubai, and Melbourne. These flight times are indicative and give a general indication of hours spent in the air. It does not take into account congestion at major airports, congestion on flight routes[14], or the added advantage for New Zealand of having two deepwater ports.

By forecasting demand for e-commerce products being shipped through New Zealand's two deepwater ports reduces transport cost substantially, i.e. e-commerce platforms can ship product to New Zealand then fly it out of New Zealand to South America, Australia and the Pacific in response to customer demand. This increases the ability to respond quickly to consumer demand. Currently, Australia is upgrading its ports, particularly in Melbourne. This work is due for completion in 2023.

It is likely that only one hub will be considered in the South Pacific (either in Australia or New Zealand). Therefore, the establishment of a hub in New Zealand is not a foregone conclusion. However, favourable time zones, geography, speed of service, and price give New Zealand a comparative advantage in linking South America with Asia. New Zealand has a window of opportunity to turn a comparative advantage into a durable competitive advantage by:

- Developing responsive hub infrastructure at minimal cost that can (partially) service South America, Australia, and the Pacific for e-commerce fulfilment. This will take advantage of the fast-growing e-commerce trade (see, for example https://shopee.com/).
- Depending on how the trade develops, the possibility exists for a free trade zone where goods are further re-packaged, reformulated, or transformed before they are ready for sale. What regulations would be needed has yet to be investigated but would be highly dependent on what types of transformation processes are undertaken.
- Improving passenger connections between ASEAN–North Asia and South America is likely to stimulate and increase the number of tourists who can visit both New Zealand and South America. Appendix B sets out the bilateral air services agreements between Australia and New Zealand and South America and Asia.[15]
- Improving air connections, particularly between New Zealand and South America, to assist the New Zealand education industry in meeting its targets and diversifying its portfolio of international students.
- Strengthening ties between South America and ASEAN–North Asia by developing the potential for New Zealand business intermediaries (disputes resolution, accounting, and other professional services). The potential for Asian and South American companies to locate in New Zealand to coordinate their Asian/South American activities also increases.
- Increased connectivity by the recently announced Transoceanic Cable. This will connect Chile with New Zealand and Australia and will increase connectivity between Oceania, Asia, and South America. Although the specific details of this venture are not known, it reinforces digital links between New Zealand and South America, increasing the chances of further services trade.

[14] Flight routes into New Zealand can provide optimal flight levels for aircraft to fly through the Southern Link. This does save on time and fuel burn.

[15] We have known for some time that time dependent products were heavily reliant on passenger services for export of goods. The COVID-19 pandemic has further reinforced our understanding of that fact.

1.5 Air connections, regulatory settings, and meeting tourism and educational challenges are key to success

The purpose of this report is to provide an understanding of the potential opportunities (and benefits) of the Southern Link and identify and detail the main challenges that have to be overcome to realise these potential benefits.

The main challenges are:

- Air connections between South America and New Zealand – their frequency and potential competition from Australia (i.e. why would you stop in New Zealand?).
- The changes in regulatory settings would allow for a smoother movement of goods along the GVC without compromising New Zealand's biosecurity, security, and trading opportunities.
- Re-thinking the way we deliver tourism and education services to take advantage of new trends in education (micro-credentials, short courses, mini electives etc.) and broadening the tourist offering (dispersal strategies from main tourist attractions).

We have drawn from international and domestic studies, case studies, information from logistics companies with experience of the route, perceptions from participants working in the various sectors that could benefit, and respondents with knowledge of the markets.

The analysis is intended to give decision-makers an indication of the likely benefits to better understand the opportunities that may be 'in play'. There remain a number of uncertainties on costs, impacts, and practical implementation issues that subsequent investigations may clear up. Not the least of which is how the world interconnects as the threat of COVID-19 recedes. As such, the depth of the opportunity analysis reflects the initial scoping nature of the assessment.

2 What is happening currently?

The COVID-19 pandemic has clouded the ambition and opportunity for the development of the interconnections required for the Southern Link to fully operate. In pre-COVID-19 times most airfreight was typically hauled in passenger aircraft supplemented by dedicated air freighters on high value routes (mostly one-off flights).

With very few passenger planes flying internationally due to border closures and lockdowns, air freighters are the main source of airfreight. This has had the impact of increasing the volumes and prices of freight going by air freighters. Prices increased dramatically (by 3 times) in January/February 2020 but have since declined somewhat over the course of the year.[16]

Despite air passenger services being in disarray, the air freighter business has been booming.[17] On the Southern Link, some airlines have taken advantage of the speed and lack of congestion. Two South American Airlines, Aerolineas Argentinas and LATAM, have

16 One interviewee suggested that prices had gone up to approximately NZ$15 per 400g e-commerce package in February/March (Asia to New Zealand). This price has come down to around NZ$8 or NZ$9 but it is still double the usual cost.

17 Deutsche Post DHL have recorded a 16% increase in profit in the second quarter of 2020. https://www.aircargonews.net/freight-forwarder/dp-dhl-reports-significantly-increased-earnings-in-q2-2020/

transported essential medical supplies from China to South America via New Zealand on a semi-regular basis. This is the first time that LATAM has touched down in Shanghai.[18]

This demonstration effect of flying the Southern Link plus trial runs by logistics companies prior to COVID-19 lockdowns suggest that the speed and the price per kg are competitive with alternative routes. A further point is the lack of congestion in New Zealand airspace and on the ground. [19]

2.1 What is a GVC?

The Southern Link is an opportunity to develop a GVC. More importantly, New Zealand tends to be at the end of a GVC where opportunities are more constrained since we are further away from markets. The Southern Link puts New Zealand in the middle of a GVC. This potentially increases the chances of increased business generation since New Zealand will be at the centre of a logistical hub that will require business coordination and support.

GVCs play an important role in world trade (see Figure 1). They grew significantly during the 1990s and early 2000s but have declined lately. Despite the recent decline, GVCs are still around 50 percent of world trade.

Characterising international trade as manufacturing a product in one country, putting it into a box and sending it off to a wholesaler or retailer in another country is a thing of the past. While COVID-19 may change some aspects of GVCs, trading approaches typically include fragmented international production networks, where intermediate goods and services cross numerous borders before ending up with a buyer who consumes the product. Typically, these value chains stretch across countries and locations; they are also encouraged/supported by regulatory settings.

A GVC is a network of cross-border and domestic flows of goods, services, and factors of production (including capital, knowledge, and labour[20]). In this report, we focus on air services where air cargo plays an important role in facilitating trade, movement of people, stimulating hubbing and freight movements.

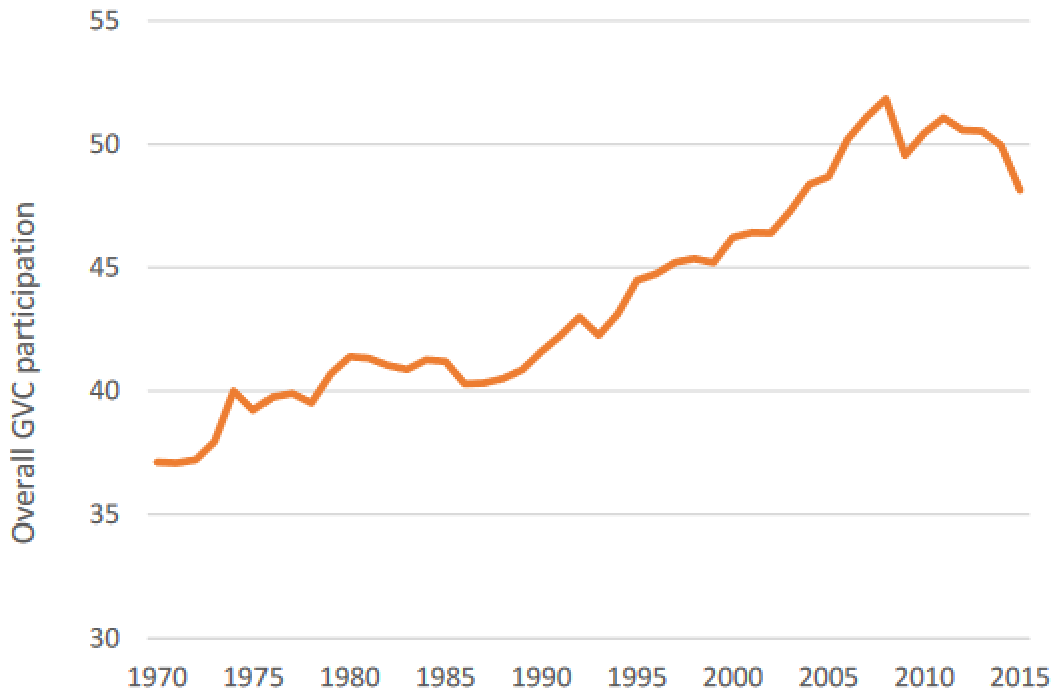
Increased interconnectivity broadens the range of tourists and students that could be attracted to New Zealand and provides opportunities for business intermediaries to assist the trade.

18 https://nzchinacouncil.org.nz/2020/04/two-latin-american-airlines-fly-the-southern-link-to-shanghai/

19 According to Asendia they were able to cut deliver times from 4 weeks to 1 week by diverting through the Southern Link. A key issue was the lack of congestion. They also noted that New Zealand regulatory authorities were much easier to deal with and were more interested in achieving the right regulatory outcomes rather than focused on process.

20 Page 5 https://www.iata.org/contentassets/307646ccaf10488f9ee240c87d8f72dd/value-of-air-cargo-2016-report.pdf

Figure 1 The importance of GVCs



Source: World Bank[21]

2.2 New Zealand's participation in GVCs is low

There are some mitigating factors:

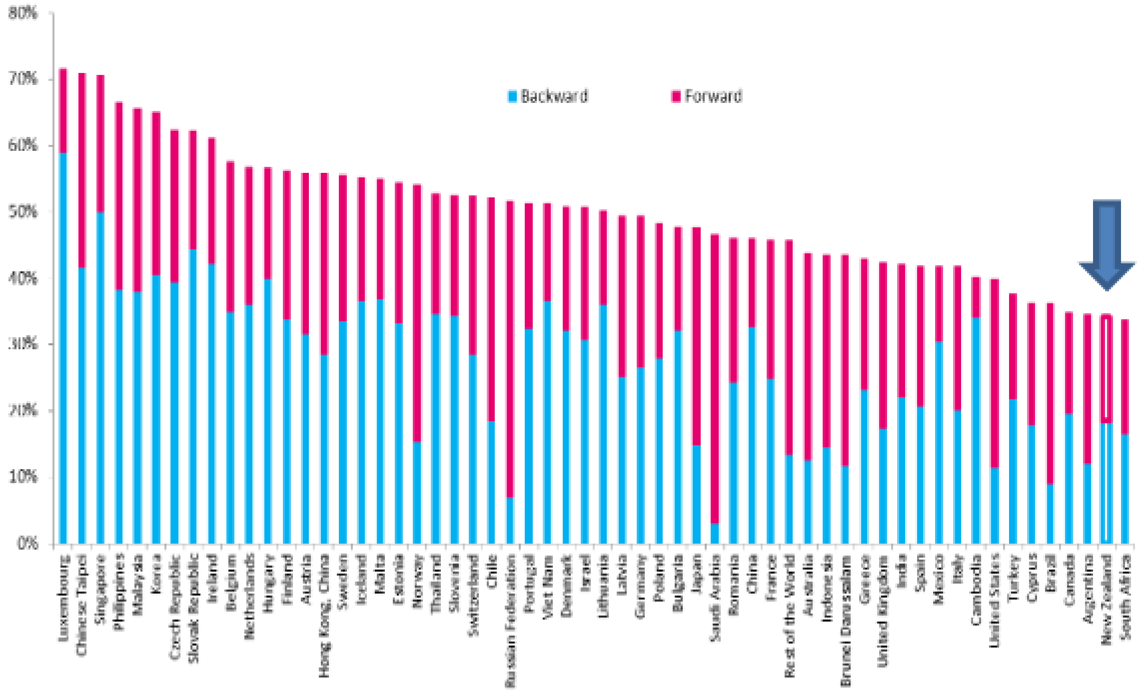
- Distance from major markets. New Zealand tends to be at the end of the supply chain; therefore, its ability to be part of a GVC is limited.
- The small scale of the New Zealand market means that companies engaged in GVCs are less interested in New Zealand.
- While overall GVCs scores are low, New Zealand is better represented in agriculture and food and beverage GVCs.

The opportunities to participate in GVCs are limited for New Zealand. Therefore, when opportunities such as the Southern Link do emerge, it is important that they are looked at closely.

Also, the impact of GVCs on New Zealand may be smaller since its ability to take advantage of increased connectivity may be much less than other regions since they are not surrounded by large populations (see Figure 2).

[21] http://pubdocs.worldbank.org/en/124681548175938170/World-Development-Report-2020-Draft-Report.pdf

Figure 2 GVC participation index – all sectors



Source: NZIER[22]

[22] https://nzier.org.nz/static/media/filer_public/51/9b/519b017e-b6e5-4629-b507-9972e6c47507/nzier-summary-report-gvc-policies-for-nz-fb-and-ag-28-jan-2016.pdf

3 The opportunity: growing connections between Asia and South America

3.1 Strong trade growth between South America and Asia

Since 2000 total trade between South America and Asia has grown by a factor of 6.[23] Brazil is the most important trade partner. The South American trade is dominated by intermediate products (commodities). Asian trade tends to be more elaborately transformed. It will be a major challenge for South American companies to diversify their trade base and plug into Asian GVCs.

However, the continued development of South American economies and the speed at which trade is increasing will not only assist in improving the balance of exports but also help strengthen South American/Asian supply chains.

The increasing importance of e-commerce and potentially tourism is likely to assist this process in reducing the volatility of trade links. Below we look at e-commerce developments.

3.2 The development of e-commerce

E-commerce is the use of the internet to conduct business transactions nationally or internationally. E-commerce can be:

- A more effective and efficient conduit and aggregator of information[24] as well as providing access to goods and services (therefore hubbing is an important strategic approach to improve efficiency further and utilise customer information trends).
- A potential mechanism for the out-sourcing of many economic activities once performed within a business enterprise to specialised suppliers that compete to execute these activities.[25]

E-commerce has dramatically expanded opportunities for business-to-business and business-to-consumer transactions across borders. Online platforms allow:

- Consumers the ability to transact directly with a foreign seller – personalised international trade.
- Sellers display their goods and service in the form of a web page to consumers all over the world. Technology has expanded the consumer marketplace to an unprecedented degree.[26]

As a result of increased use of the internet, e-commerce is growing dramatically (see Table 2).

[23] https://www.aiib.org/en/news-events/asian-infrastructure-finance/articles/a02-latin-america-and-asia-trade.html

[24] https://pdf.sciencedirectassets.com/277811/1-s2.0-S1877042811X00174/1-s2.0-S1877042811015382/main.pdf?

[25] ECLAC. Electronic Commerce, International Trade and Employment: Review of The Issues. UN, Economic Commission for Latin America and the Caribbean ECLAS, Washington Office, April 2002, pp 1-30.

[26] Ham, S. and Atkinson, D. R. A third way framework for global e-commerce. Progressive Policy Institute, Technology & New Economy Project, March 2001, 1-29.

Table 2 World internet usage and growth

Region	Internet use rate (%)	Growth 2000 – 2020
Africa	47.1%	13,900%
Asia	59.5%	2,100%
Europe	87.2%	590%
Latin America/Caribbean	71.5%	2,400%
Middle East	70.8%	5,500%
North America	90.3%	200%
Oceania	67.7%	280%
World growth	63.2%	1,200%

Source: Internet world Stats[27]

What could potentially drive benefits from the Southern Link is the:

- Establishment and strong growth of e-commerce in ASEAN–North Asian economies (Shopee, Lazada, Rakuten, and Alibaba are examples of major e-commerce platforms in the region). ASEAN–North Asia is also the major production source of e-commerce goods (such as apparel).
- The growing use of e-commerce in South America, particularly the biggest market Brazil.
- The ability to ship product to New Zealand from Asia and then fly it on to South America and potentially the Pacific and Australia.
- Developments such as DEPA underpin government to government electronic trade opportunities with the potential for expansion to other jurisdictions.

3.2.1 Driving the infrastructure that creates a competitive advantage

The development of e-commerce hubbing infrastructure could be a key opportunity to turn a comparative advantage into a competitive advantage. In the jargon, a fulfilment centre assists in the development of hyper localisation. While there are many definitions of hyper localisation, what it requires is an understanding of the customer that reaches across all aspects of retail, including supply chains.[28]

For e-commerce, this requires the development of hubbing/fulfilment centres that are able to rapidly respond to customer needs, i.e. a customer buys three pairs of jeans, tries them on and sends two pairs back free of charge. By sending the product 24/48 hours after purchase and then being able to respond in an efficient way to return goods offers an opportunity for New Zealand hubbing facilities that support South American, Australian, and Pacific e-commerce activity.

By establishing an efficient hub, New Zealand will be in a much stronger position to remain part of the GVC even when technology allows it to be bypassed (i.e. when planes can regularly fly direct from Asia to South America).

27 https://www.internetworldstats.com/stats.htm

28 https://www.retaildive.com/news/what-is-hyper-localization-and-what-does-it-mean-for-retailers/415092/

3.3 Tourism

Prior to COVID-19, visitor numbers to New Zealand were expected to grow significantly. Nationally, visitor numbers were forecast to continue to grow to approximately 5.1 million by 2025 (from 3.8 million in 2018).[29] The COVID-19 reset will change these forecasts dramatically. And there is huge uncertainty about:

- Who will travel? What countries will connect with New Zealand? This will depend on the appetite of the sending and receiving nations and the assessment of COVID-19 related information in each country.
- When will travel occur? Issues around 'smart' quarantine, vaccine effectiveness, and attitudes to risk are clearly important. This is hugely uncertain and will depend in no small way on the ability of public health institutions to develop efficient solutions to mitigate these issues.
- What airline services will return to the market? Again, it is uncertain as to how airlines will respond, given that profitability of airlines has been questionable for decades.[30] Potential responses are:
  - Airlines will shrink, and consequently, services will as well. Issues around climate change and not fully pricing in airline externalities will ensure that shrinkage will become permanent. There was some evidence of switching to other forms of transport in Europe prior to COVID-19.[31]
  - Airlines will respond by cutting fares and enticing customers back into the market. While airlines will suffer significant short-term losses, they will be back to business as usual. There is some evidence that this is occurring in China.[32]
  - Airlines will more resemble shipping companies that, through government-owned banks, support national carriers. In this situation, airline companies will fiercely compete for market share. Also, route selection will become more overtly political (although many would argue that this has been the case since the signing of the first air services agreements).
  - A degree of irrational behaviour by airlines, particularly state-owned airlines. They may use predatory pricing to ensure they grab market share in the short run. This occurred after the Global Financial Crisis (GFC).
  - A good time to enter the airline business. With planes, airline crew, executives, and all other activities associated with airlines being under-employed, the barriers to entry to the airline industry have never been lower.

Therefore, forecasting airline activity and frequency needs to be treated with trepidation.

3.4 Education exports

In pre-COVID-19 times the international student sector was worth approximately NZ$5.1 billion. In the post-COVID-19 world, the aim of the industry is to recoup the losses by

[29] https://www.mbie.govt.nz/assets/a8bba25fdf/new-zealand-tourism-forecasts-2019-2025.pdf

[30] See for example: https://www.investopedia.com/financial-edge/0510/4-reasons-why-airlines-are-always-struggling.aspx

[31] https://www.weforum.org/agenda/2020/01/german-swedish-flight-shame-train-environment/

[32] https://www.bbc.com/news/business-53927980

increasing their efforts to develop international partnerships and increase their online footprint.

How quickly they can re-establish their footprint in the market and develop the longer term strategies required to meet their individual marketing plans is uncertain, i.e. some universities are planning to recover their numbers while others are aiming to change the mix of students (e.g. more of an emphasis on postgraduates than undergraduates).

This has meant that the lockdown period has been a particularly frustrating time for those attempting to develop long term marketing plans to attract international students. Connecting with prospective education partners through video conferencing to offer online courses with an uncertain option to study in New Zealand do not have the same impact as face-to-face meetings to offer a study and work experience in New Zealand.

Unlike other forms of commerce, the development of education markets is a 'slow build', therefore recovering and building on international student numbers (including those from South America) is likely to take more time. It also presents a challenge to the education sector as they need to consider opportunities to change their offering to:

- Combine tourism with education products. Short courses could be combined with cycling tours or great walks (as an example).
- Introduce micro credentials. The trend in micro credentials is increasing in universities, and the increased connection between New Zealand–Asia–South America is a chance to capitalise on this trend.
- Encourage MBA students from other parts of the world as part of their MBA to do mini electives in New Zealand.

There are benefits to New Zealand students from exposure to overseas students. They are exposed to different cultures and perspectives. Further, in some courses, overseas student participation allows New Zealanders to study courses that would not be normally offered.

3.5 Services and business intermediaries

A key part of the long term growth connection between the three regions is the development of services that not only assist the physical trade but also become important in their own right. While it is difficult to predict how this may develop once sustained air service connectivity is introduced, there are a number of opportunities that can be developed.

3.5.1 Business intermediaries

The development of a GVC with New Zealand as a hub for the movement of e-commerce, other freight, and passengers may allow for New Zealand to develop as a centre for disputes settlements. It may also be an opportunity to support this economic activity through legal and accounting services.

Arbitration is a form of disputes resolution used in commercial contracts. Traditionally the main arbitration centres are strategically located in the midst of the very large east-west world trades: Singapore, Hong Kong, New York, London, and Paris. These services tend to deal with large company business disputes, and the services are beyond the range of small to medium enterprises (SMEs). Also, they can be used to resolve violations of a treaty's investor protection provisions.

The cost of these services can be well outside the reach of SMEs. New Zealand has advantages of:

- Significantly lower costs so that SMEs can access these services.
- Shorter delivery times for verdicts, i.e. video technology, can be used to speed up processes, so protagonists do not have to travel long distances.
- New Zealand has strong institutions (we are always in the top five of any international rankings, e.g. the World Justice Project), so we can be a trusted partner.
- Geography assists the New Zealand case since the time zones are favourable. New Zealand is able to communicate with Asia and South America within office hours. This reduces costs (i.e. an extra shift is not required in Chile, for example, to communicate with employees and wholesalers in Asia). While Australia has good connectivity with Asia during office hours, the time zones do not suit business transactions with South America during office hours.
- A diaspora with language skills, although Australia also has this advantage.

It is for these reasons that the Argentine Chamber of Commerce has reached out to the New Zealand International Arbitration Centre and signed a memorandum to provide disputes resolution services.

This is a first step in cementing New Zealand's position as a neutral country that can resolve disputes between Argentina and Asia.

3.5.2 Other services

Increased connectivity also increases the opportunities for South American firms to locate in New Zealand. One interviewee understood that there were a large number of Chilean companies in Asia marketing fruit. While it is easy to shift products around the world, it is much harder and more costly to be close to your customers, i.e. be in the same time zone and respond to their needs. They noted that these companies who may be servicing 10 Asian nations had several issues:

- They had high costs (e.g. schooling for dependants could be as much as NZ$ 60,000 per annum)
- Chilean companies had to reorganise their businesses so they could talk to their company representatives in the market, i.e. put on an extra shift between 6 pm and midnight.
- A market office in Asia is two flights away from a South American head office.

These problems mean that New Zealand is ideally suited as a place to locate a service office. It does not preclude a company from having an in-market presence, for example:

- New Zealand is not cheap, but it is cheaper than locating in Asian nations.
- It is 'time zone friendly' for both markets. Both markets can be reached within office hours, i.e. we are aware that some multinationals run their operations for the Asia Pacific from New Zealand.
- It is one flight away from both market and head office.
- Excellent quality of life in an English-speaking environment.

4 The framework

4.1 The high-level model recognises the importance of political will, economic imperatives, and institutional strength

The approach recognises that while durable economic factors drive the opportunity of the Southern Link, other factors may also be important. The aim has been to use a mixed-methods approach using qualitative and quantitative techniques to profile the opportunities and constraints in their many dimensions.

The way forward must:

- In the year that New Zealand hosts APEC, be consistent with the prevailing political, economic and institutional considerations, e.g. the recently signed CPTTP and RCEP, ASEAN and North Asian foreign policy initiatives, and New Zealand and South American trading objectives.
- Set out where the opportunities might exist in each area, i.e. how the politics, economic opportunities, and institutional support can create momentum that can drive further growth through e-commerce, tourism, education, business intermediaries, and other service offerings.

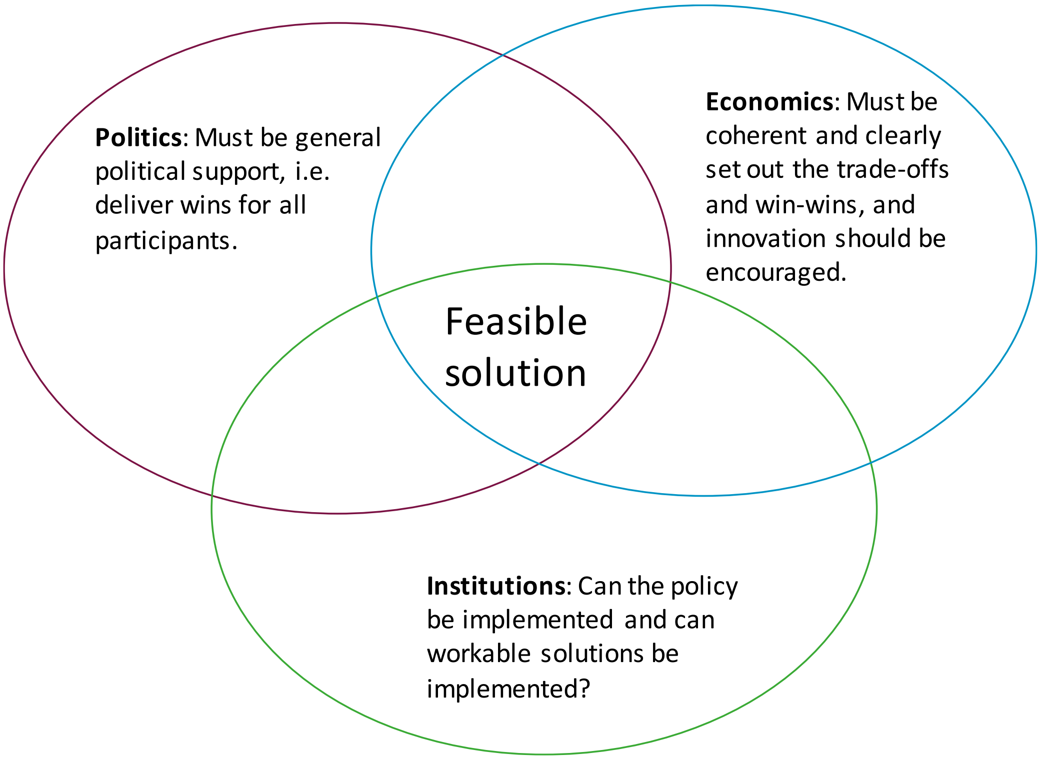
Realising the opportunities requires a focus on the political, economic and institutional constraints that exist and a shared understanding of either what is feasible within the constraints or which constraint can be removed. Figure 3 sets out the general approach. Unleashing the opportunities requires resolving the tensions (or constraints) that limit trade over the short, medium, and long-terms. Actions could involve short-term fixes, a series of interventions in response to events, technological changes, or novel ways to facilitate trade.

What we know is that feasibility relies on:

- Political feasibility, i.e. judgments by politicians about what can be sustained politically. How consistent are current/future approaches with Asian, New Zealand, and South American political objectives? At an operational level, airline route selection can be politically as well as economically motivated.
- Effectiveness and efficiency considerations, i.e. judgements about the achievement of goals (environmental, social, economic and cultural) and the best use of scarce resources to achieve those goals. The economic imperative is that the Southern Link has comparable speeds, is less congested, has bimodal options, and it is price competitive (see section 1.4).
- Administratively achievable, i.e. having policy settings that can be practically implemented and that can be adjusted to meet the requirements of new trades.

By employing this approach, we believe we can create a realistic view of opportunities, constraints and priorities and can make recommendations with a reasonable degree of confidence.

Figure 3 Authorising environment: What needs to happen before opportunities are captured?



Source: NZIER

4.2 What opportunities lie within the feasible solution?

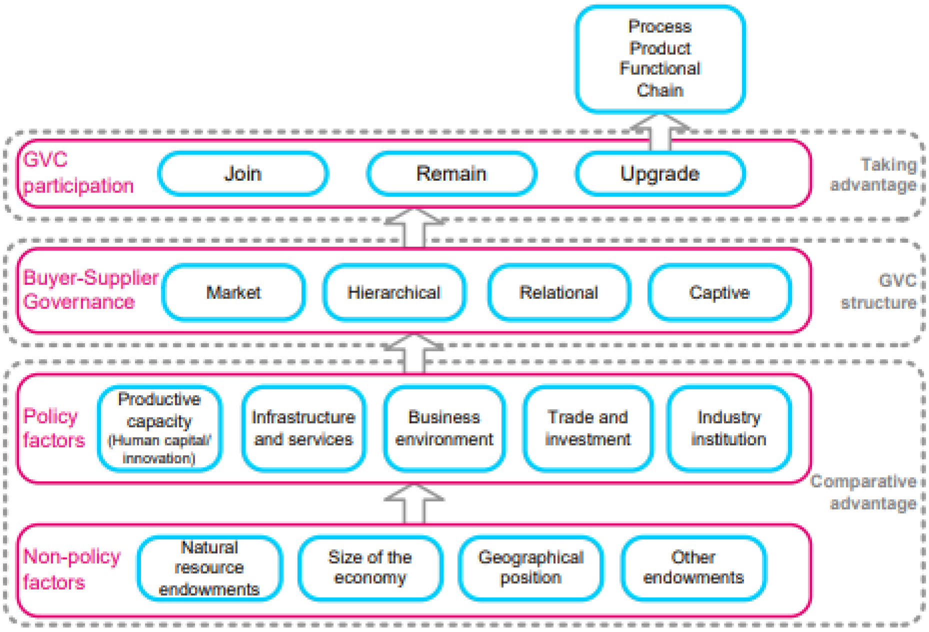
There are a number of factors that have to come together to influence the effectiveness of the Southern Link GVC. In this project, our aim is to set the potential size of the GVC opportunity.

In Figure 4, we have set out what the wider GVC literature suggests as being important for an effective and efficient Southern Link to work, i.e. opportunities that fall into the feasible solution.

We have used this diagram as a checklist to ensure that we cover the issues that we need to address when attempting to value the opportunity of the Southern Link. We are also interested in factors that turn a comparative advantage into a competitive advantage.

Developing a competitive advantage where others know what New Zealand is doing but can't replicate it is key to the development of a durable edge that can be reinforced and added to over time.

Figure 4 Southern Link participation framework



Source: NZIER

5 Benefit analysis – valuing the opportunity

We have identified the key factors and attempted to understand what might drive the linkages and alignment required between the politics, use values (social, environmental, economic, and cultural factors), and institutions that can support such a linkage.

As part of this process, we compare the effects and outcomes associated with the development of the Southern Link against what would have occurred under a counterfactual, i.e. without the link.

This counterfactual can be described as a projection of the status quo into the future as supply and demand conditions change.

As part of this process, we have attempted to abstract ourselves from the current COVID-19 crisis. Although this is difficult given both business and government are tightly focused on getting through this period and mitigating as much as possible against its worst effects.

We do, however, acknowledge that some commentators are pointing to the lasting impact of COVID-19, and we have endeavoured to incorporate that into the analysis (e.g. see Section 3).

5.1 Business as usual or counterfactual

Setting up the counterfactual is difficult because there is:

- Limited baseline data from which to measure any change, particularly with COVID-19
- Uncertainty about what stakeholders would do in the absence of the Southern Link

- Uncertainty about the impact of initiatives that would emerge without a commitment to making the Southern Link happen.

Therefore, there are potentially a number of credible counterfactuals. The one we assume here is open to question and should be treated as a 'work in progress'. We treat the counterfactual here as a tentative 'peg in the ground'.

Currently, there are established routes from Asia through the Middle East and Europe (London, Paris, and Madrid) to South America. These routes will continue and be the dominant trade routes from Asia. The Southern Link has potential because of the huge growth in Asian/South American trade and the fast-growing nature of the e-commerce trade and that flight times are comparable to existing routes (see appendices A and B for comparison in flight times, fuel consumption, and bilateral air services agreements).

We assume that there will be only one hub based in Australia and that New Zealand will be bypassed. There may be air links between New Zealand and South America, but they will be fewer than what occurred during the pre-COVID-19 period.

We recognise that New Zealand may benefit from an Asian–South American hub established in Australia, but we have not factored that into the counterfactual.

6 Specific benefits of the proposal for New Zealand

6.1 Estimating the impact on the New Zealand economy

We have used the Value of Air Cargo report commissioned by IATA[33] to benchmark the value of the Southern Link to New Zealand. One of their main conclusions is that for every 1 percent increase in connectivity, a 6.3 percent increase in trade is expected (both exports and imports).

The key point for the Southern Link is the positive correlation between increased connectivity and trade. Further investigation into the IATA research and how it might translate to New Zealand suggests that the correlation will probably overstate the likely benefits for a 'market-distant' country with a small population. The full benefit may well occur if the GVC was situated in Europe or other parts of the world (even in some lesser developed nations), but it is unlikely to generate the same impact for New Zealand.

To further understand what benefits might occur for the New Zealand market, we used estimates from the Commerce Commission[34] on the level of efficiency that the Southern Link might generate.[35] In the New Zealand context, the gains are likely to be less than 3 percent. Since most of the benefits are likely to go to those who buy and sell the goods and services generated by increased connectivity, we use as an assumption ½ percent (of trade) as a benefit to New Zealand of the establishment of the trade through the Southern Link. For every 1 percent increase in air connectivity, a ½ percent increase in trade is expected.

We envisage the following benefits:

[33] https://www.iata.org/contentassets/307646ccaf10488f9ee240c87d8f72dd/value-of-air-cargo-2016-report.pdf

[34] Pickford, M. 1998. The evaluation of public benefit and detriment under the Commerce Act, Commerce Commission Occasional paper no. 7.

[35] The Commerce Commission used this rule of thumb for the maximum benefit for various classifications of efficiency when looking at mergers and acquisition.

- The establishment of an e-commerce hub that not only services the main South American markets but also is utilised to increase e-commerce traffic to Australia and the Pacific (where connectivity and access to goods are limited). This will require:
  - The development of warehousing infrastructure.
  - Employment for potentially 30 full-time equivalents (FTEs).
  - Some regulatory changes (which are relatively minor).
- Increased numbers of tourists coming to New Zealand and going on to South America as Asia and South America look to increase their economic and social ties. Christchurch Airport estimates that the opportunity over time could lead to an increase of 1.2 million passengers nationally.[36]
- Increased numbers of students, particularly from South America as flight connectivity increases. While South America is not a major target for New Zealand education institutions, the opportunity to widen the number of sending nations is welcomed. This helps spread the risk through diversification of sending nations and increases the vibrancy of campuses. Numbers will take time to build up since the development of relationships with partner institutions and the impact of COVID-19 on this process may constrain the ability to rapidly ramp up demand.
- Chances for business intermediaries and other services. The opportunity for New Zealand to act as a gateway to Asia for South American companies increases dramatically. This could occur through:
  - Increased connectivity. This will provide an opportunity for South American firms to locate in New Zealand. Time zones, geography, and ease of doing business in New Zealand will make it more attractive.
  - The development of dispute resolution services where South American and Asian companies can resolve cases, at least cost.
  - Increased demand for legal and accounting services generated by increased connectivity and hub activities.

Table 3 summarises the size of the opportunity. We do not expect that the increased connection will happen ‘overnight’. We have tapered the benefits with full benefits only occurring after 5 years. There is also uncertainty about how airlines will react once the COVID-19 crisis recedes (see Section 3.2).

[36] Interview with Christchurch International Airport. Estimated potential tourist numbers nationally.

Table 3 Summary of benefits

Sector	Share of benefit	Total sector benefit	Comment
E-commerce	55%-65%		Based on volumes expected, estimates provided by logistics companies
Tourism	20%-30%		Passenger estimates developed by Christchurch Airport
Education	5%-15%		Pre-COVID estimates tempered by longer led times and changing strategies
Business services and other services	2%-10%		New opportunities in New Zealand as trade increases
Total direct benefit (over ten years)		**$NZ 1.87 billion**	
Other benefits to the economy			
Direct employment (hubbing)			Approximately 30 FTEs
Construction		$5 million	
Increased administrative costs for government		Not determined	Government may look to cost recover
Notes (1) No benefits in 2021/2022 March year because of COVID-19. (2) Benefits estimated over 10 years and discounted at 6% (3) Assumes 1 flight a day to South America.			

Source: NZIER

6.2 E-commerce

The speed at which e-commerce has become a major trade has been dramatic. In New Zealand, e-commerce import penetration has occurred over the last 10 years. The impact on retailers in New Zealand has been significant enough for the government to lower the GST exemption threshold from NZ$400 to NZ$60 per item.

Around the world, e-commerce platforms are taking advantage of a gap in the market and providing services that customers are flocking to (see Section 3.1.1). E-platforms such as Shopee have only been in operation for 5 years. Now they are the leading operators in ASEAN and regions such as Taiwan and Hong Kong. They have also started operations in Brazil. **This is a significant development and underpins the growing links between South America and Asia.**

The traditional routes for e-commerce fulfilment to South America from Asia are through the Middle East and Europe. These routes will continue to dominate e-commerce traffic. Further, as the trade is growing, logistics companies are always looking to improve the efficiency and effectiveness of their business offering as they work together with e-commerce platforms.

The e-commerce opportunity that has opened is that it is quicker to move e-commerce and mail through New Zealand into South America relative to other routes (i.e. through the Middle East or Europe). Asendia (a joint venture between La Poste and Swiss Post) trialled the link pre-COVID-19 and confirm that:

- That the route can be faster and have a simpler transit, it also avoids congestion, planes being able to fly optimum levels – saving significant time and fuel, and planes not being caught out by curfews (e.g. at Dubai airport) which can result in significant delays.

- The price per package is competitive – this is contingent on regular flights from New Zealand to South America and the possibility of shipping e-commerce packets to New Zealand from Asia.
- It spreads the risk in terms of supply lines. Asendia can potentially send 15 percent of their freight through the Southern Link.

If a link can be established (assuming a once-a-day service between New Zealand and South America – a combination of passenger and freighters), then the e-commerce volumes are likely to flow are in line with the benefit forecast.

This will then give e-commerce platforms the confidence to use New Zealand as a hubbing centre to service not only South America but also the Pacific and Australia (see section 3.1.2).[37]

The e-commerce traffic from Asia will also be enhanced by the ability to ship goods in advance to New Zealand. This widens the arc from which e-commerce goods can be sourced.

Therefore, the opportunity is significant and likely to form the economic backbone for the connection between New Zealand and South America. Potentially, the e-commerce benefits through connectivity are between 55 percent and 65 percent of the total benefits from the Southern Link over ten years.

6.3 Tourism

Increased connectivity between New Zealand and South America and between Asia and South America through the Southern Link is likely to increase tourism numbers. This is enhanced by the increasingly close connections between ASEAN–North Asia and South America. These connections are likely to grow over time.

Forecasting growth in tourist numbers can be highly dependent on levels of income and propensity to travel. Connecting with a mobile and high-income city/region can open up new demand (in economics, this is called supply induced demand). The mere fact that the service has started means that people will use it. Whether the Southern Link will follow this pattern is unknown since we also have to factor in government preferences for travel destinations (particularly for Chinese tourists).

We have taken the projections from Christchurch International Airport Limited (CIAL) as the potential size of the extra number of tourists that might travel to New Zealand and potentially go on to South America. According to CIAL, the opportunity is approximately 1.2 million passengers per annum, with the biggest South American market being Brazil.

Greater volumes of tourists are likely to create challenges for the sector, which are discussed in Section 7.

Uncertainty around tourist take-up means we have used wide confidence intervals as part of our estimates. The implications for value have been tapered in over 10 years, given the COVID-19 disruption in receiving and sending markets and uncertainty over how airlines

[37] Under COVID-19 we are already trans shipping parcels into Australia via Auckland rather than sending them directly into Australia from Asia.

will respond. We are confident that it will at least create between 20 percent and 30 percent of the opportunity described in Table 3.

6.4 Education

Education exports from South America are likely to benefit from increased connectivity. Student numbers will take some time to ramp up. South America is a lower priority market than Asian markets, given the strong growth pre-COVID-19 from India and China. There are a number of reasons for this, and connectivity is only one of the hurdles that will be required to be cleared (see section 7).

However, it does offer the opportunity to diversify its portfolio of students. Like tourism, it does create challenges that will need to be addressed with the type of offerings that will be needed.

We expect that increased connectivity will deliver between 5 percent and 15 percent of the opportunity described in Table 3.

6.5 Shipping

We do not think that current shipping connections will be impacted by the Southern Link in the short to medium term. The main reason for this is that shipping drivers are independent of the Southern Link proposal. There are a number of reasons for this:

- The shipping connections with Asia are frequent. Therefore, freighting extra e-commerce parcels from Asia to New Zealand is unlikely to create the need to increase the number of services.
- As a commodity producer, New Zealand needs many more empty containers than imports can provide. Some of those empty containers (required for New Zealand's export trade) can be utilised to ship e-commerce parcels. This reinforces the first point.
- Our assumption is that the number of e-commerce parcels that could be potentially moved to South America will not be enough to guarantee a regular direct shipping service between New Zealand and South America.

We note that in the past few years, shipping companies have started and then discontinued services between New Zealand and South America. This situation may change in the future. Shipping companies are always looking for opportunities. However, given current freight volumes, the introduction of new regular freight services is unlikely in the short to medium term.

6.6 Business intermediaries and services

Increased connectivity offers opportunities for New Zealand and South American based businesses (see section 3). How these opportunities are taken up will depend on the attitudes of the business communities in all three regions.

Potentially, services is the area where there is significant upside for New Zealand. The opportunity for New Zealand to act as a gateway to Asia for South American businesses is considerable, particularly as those ties between South America and Asia strengthen.

As a result, we expect the opportunity to be between 2 percent and 10 percent.

6.7 People movement

The Southern Link will likely increase the number of tourists and students coming to New Zealand. It might also cause some South American and Asian firms to re-locate to New Zealand if the volume of trade over the Southern Link increases substantially.

However, it is very unlikely to impact inward migration into New Zealand over the next ten years. It is more likely that inward migration will be reduced since other political settings – independent of the Southern Link – will drive migration flows. We expect that inward migration will drop from 79,000 in the June 2020[38] year to well under 50,000 over the next few years.

We may find that over the longer term (after ten years) that increased volumes of trade increase the number of people from South America settling in New Zealand. This may be dependent on what trade develops over and above the e-commerce trade.

7 Implications

7.1 What can New Zealand influence to make the Southern Link go?

7.1.1 Consistency with trade policy objectives

The Southern Link needs to be consistent with New Zealand's trade policy objectives, i.e. we are traders with the world, and we want New Zealand businesses to engage with the world. This comes from the bitter experience of being part of the sterling block and almost exclusively trading with Britain[39] and the difficulty of re-orientating the New Zealand economy.

Trade policy strategy used to enable this process – in a world where the multilateral system has been downgraded – is concerted open plurilateralism.[40]

The Southern Link is consistent with concerted open plurilateralism because it drives connectivity between like-minded regions. It does this by:

- Focusing on connectivity with South America. Increased connectivity will provide opportunities for New Zealand since it further opens up markets that New Zealand has previously had little contact with.
- Placing New Zealand in the middle of a new GVC between two growing markets. The e-commerce play has huge growth potential that can drive increased connectivity that in turn increases opportunities for other businesses such as tourism, education services, and business intermediaries.
- Increasing connectivity opens up opportunities to diversify our trade offering. Increased interconnectivity reduces barriers to entry into South American markets and allows businesses to grasp the opportunities available.

38 https://www.stats.govt.nz/news/international-travel-and-migration-patterns-shift-due-to-covid-19-pandemic

39 https://nzier.org.nz/static/media/filer_public/39/60/39601700-4765-4500-8a6f-5f0ee045ffe4/170.pdf

40 New Zealand clubs together with likeminded nations to agree deeper trading terms. As part of the architecture, it makes room for other and makes easy for others to join. The best example being the P4 which turned into the CPTTP.

7.1.2 Ensuring that our internal settings assist the process without compromising our sovereignty

Over the COVID-19 lockdown periods, the New Zealand bureaucracy worked extremely hard to facilitate flights between Asia and South America via the Southern Link.

This 'can do' approach demonstrates the willingness of the New Zealand government to listen and address the flight routing issues in a practical way. This and broader initiatives around digital transformation and streamlining customs procedures (e.g. single window,[41] use of e-signatures etc.) increase and underpin confidence that practical solutions can be found to reduce the hurdles to trade.

E-commerce requirements

The New Zealand Customs' Service is open to and are willing to work collaboratively with all parties considering the development of an e-commerce hub component of the Southern Link. They would like to see a specific proposal before making any commitment. Of paramount importance is that Customs and other agencies involved would need to balance the benefits, costs, and risk of any specific hub proposal. With this in mind, a number of issues will need to be considered:

- What form the hub arrangement could take should not be limited to a bonded warehouse model since there are new technologies, data sets, risk assessment techniques, and screening methods that can be adopted to improve the effectiveness of previously existing models.
- Feedback from partner agencies abroad suggests that these hubs do present significant challenges. Of specific interest is the extra pressure on the resources of border agencies which may lead to less focus on at risk goods and more focus on lower priority goods that pose less of a risk to the border.
- Further investigation is required into the payment of GST. It is not immediately clear whether GST is payable or not. Again, this would need to be worked through when a specific proposal is put to Customs. They also note that a number of agencies would need to be consulted about such a proposal (Inland Revenue, Treasury, as well as Customs).
- Increased trade will require further understanding of how risks will be managed. Linking South America with Asia would require an assessment as to whether risk profiles would change and how the potential increase in risk would be mitigated.
- Legislative and procedural changes may or may not be required by Customs and Inland Revenue. A key consideration requires ensuring that any solution developed does not provide a competitive advantage to importers utilising the hub above domestic retailers, or vice versa.
- Any proposal would need to consider the extra compliance costs incurred by the Government in the oversight of the hub. Any proposal would need to be aligned with cost-recovery principles.

None of these issues are insurmountable. In fact, these may not be complicated changes, particularly if the transactions are done electronically.

41 Trade Single Window (TSW) is an electronic channel for the cargo and excise industries to submit information to government.

Tourism

Most Asian and South American countries qualify for a transit visa waiver, although Vietnam, China, Laos and Cambodia do not.

Where transit visas are needed, the requirements can be cumbersome. For example, transiting Chinese tourists going through New Zealand are required:

- To fill out a long (approximately 12 page) application form.
- To have a good grasp of English. The form is in English with no Chinese translation.
- To bear the cost of the transit visa (approximately US$200).

Further, countries such as Belgium and Australia have more lenient requirements. Therefore, Chinese tourists wanting transit visas are much more likely to travel through Europe or the Middle East into South America.

Two issues are important:

- The cost of the transit visa prices New Zealand out of the market, and it is likely to be detrimental to New Zealand's attempts to promote Chinese tourists transiting through the Southern Link. It reinforces the point that the New Zealand government is part of the value chain and can be pivotal in New Zealand's comparative advantage.
- Innovative ways need to be considered to mitigate the risks and streamline transit visa applications. How these issues are resolved more cheaply will require further consultation. We do note that the best practice for government is to do things "… as close as possible…" to the private sector.[42] The private sector has developed ways to predict behaviour, and gauge trustworthiness (on average) and some of these methods should be considered.[43]

Education

Education providers are thankful for the support they receive from the government. Government agencies do want to assist in the development of the education industry, and at times they can be very helpful.

To improve the industry position further, education institutions would like to see more coordinated action by government agencies:

- Agree on one position on policies and procedures.
- Recognise that government is part of the value chain and work side-by-side with education providers (Immigration New Zealand is pivotal in any "NZ Inc" coordination).

While the government is required to preserve its independence (to protect wider New Zealand objectives), it is the fine details of how these policies are implemented that impact the efficiency and effectiveness of marketing efforts by education providers. Ensuring a more seamless approach would further improve the education product offering.

[42] https://www.productivity.govt.nz/assets/Documents/3d3c1cd997/Final-Report-Measuring-State-Sector-Productivity.pdf

[43] Banks are also doing this. Risk rating new individual customers on their activities on e-commerce platforms.

Dispute settlement and other services

The construction of hubbing facilities in New Zealand could spur the development of 'on route' quarantine, certification, quality assurance, classification, and inspection. Other services could also produce documents for priority entry and standardisation.

For specific development of disputes settlement services, government support 'in kind' is needed to promote:

- The use of arbitration services. Government should consider having dispute resolution clauses in contracts that are entered into by New Zealand based entities. Where possible, it should reference the need to have arbitration done in New Zealand.
- Standardisation of its own contracts. Government should ask or insist that the same wording is used for some of the contracts it gets involved with.

7.1.3 Australia is our biggest competitor

There is likely to be only one hub in this part of the world, and while New Zealand has some natural advantages, it does not guarantee success in attracting the hub. The potential for New Zealand to be bypassed is real. New Zealand has advantages which by themselves do not add up to a 'pick me' but together present a strong case for location in New Zealand:

- **Location**. New Zealand is in the right location for several key routes – with one flight (10.5/11 hours) from the market and head office (Hong Kong/New Zealand and Santiago/New Zealand). Australia is slightly further away (17 hours from Santiago) and is currently at the edge of aircraft performance (for South America). Appendix A details flight times from various routes between Asia and South America.
- **Time zones**. New Zealand can deal with the market and head office within office hours. This saves costs (e.g. no extra shifts needed) and may even assist by improving response times. While more in tune with Asian time zones, Australia has more difficulty in connecting with South America in a cost-effective manner.
- A **more responsive bureaucracy** in New Zealand that has the capability of delivering practical regulatory solutions. Bulk e-commerce movement across borders is relatively new. The stance that Australian regulators tend to take is that you have to fit into their rules, and there is little latitude for these rules to change. This is also complicated by the state/federal overlay.[44]
- **Costs**, particularly labour costs, are lower in New Zealand than in Australia, especially compared to main centres such as Sydney and Melbourne.
- **Lack of congestion** associated with Auckland and Christchurch airports. Efficient route management and little congestion with approaches and departures. This means that planes are able to fly at optimum levels – saving significant time and fuel, and planes not being caught out by curfews (e.g. at Sydney airport) which can result in significant delays. This allows for a simpler transit.
- **Two deepwater ports.** Establishing an e-commerce hub in New Zealand is further enhanced with good shipping connections. It means that e-commerce platforms can ship product to New Zealand in advance of sales to South America, Australia and the Pacific. This reduces costs substantially and increases the spread of Asian nations that

[44] One respondent went further by saying if you are not part of the mining sector then the chance of developing more flexible rules is minimal.

could potentially use New Zealand as a hub. Currently, Australia is upgrading its East Coast ports with work due for completion in 2023.

The aim is to combine these advantages (set out above), which have elements of comparative advantage and turn them into a competitive advantage.

7.1.4 To capitalise on the opportunities, changes will be necessary

There are significant challenges for both the education and tourism sectors to fully capitalise on the connectivity that the Southern Link can deliver.

For education institutions, COVID-19 is a time for a reset. All institutions want to diversify their portfolio of students, but this is easier said than done. However, increased connectivity with South America does offer limited chances to increase student numbers.

Given the lead times for student enrolments, there is a need to build relationships with partner universities and hold on to as many students as possible through video conferencing. Scholarships will be a big part of how they will attract more students from abroad (including South America and Asia). Further, New Zealand being English speaking is a major advantage.

Longer term, the trend is towards short courses in English, mini MBA electives, and micro credentials. Universities, in particular, will have to become more flexible and may even need to partner with private sector providers to capture some of the additional benefits of interconnectivity. These changes will need to be made incrementally and will take time to be bedded in, and there will have to be a culture change.

Tourism offerings will also need to evolve, argue some respondents. There is a potential for educational offerings to be combined with tourism. Walks, cycling, and other leisure activities could be combined with a mini elective or a course that offered a micro credential. This may be tailored for an individual or educational and tourism activities that involved a group or family.

Crowding will increasingly become a major problem. More thought is required on how diversification strategies can be packaged and promoted in certain regions within New Zealand in a way that reduces the pressure on current tourist centres and increases the promotion of the 'road less travelled'.

The further development/promotion of the tourist trails from different parts of New Zealand is a way of relieving the pressure on tourism infrastructure. In this way, tourists can be 'dispersed' to different parts of New Zealand. From a central government perspective, the aims are to:

- Reduce pressure on the core areas where key attractions are located by enticing visitors elsewhere (such as Queenstown).
- Disperse tourists to a variety of destinations. If they are drawn to areas like Southland, their presence can provide new opportunities for entrepreneurs and create additional employment. Thus, encouraging tourists to venture into areas where economic stimulation (through employment and income) is badly needed.
- Increase the overall attractiveness of a destination by presenting 'new' experiences/features for visitors, thus providing a platform for revised marketing programmes, with the aim to increase the length of stay and total spending.

Dispersal strategies are aimed at increasing visitors' satisfaction with the tourist product and thus enticing them to stay longer in the destination(s) and ultimately to spend more, i.e. we do know that tourists visiting wine districts stay longer and spend more. It is hoped that by creating linkages to sometimes non-traditional tourist areas, the product appeal is enhanced, and these areas can tap into an already captive audience in the region.

Like diversification of student-sending strategies, dispersal strategies are easier to talk about than put into successful action. They require deliberate, incremental steps to be taken in a concerted way over time for them to be successful.

7.2 What New Zealand can partially influence

7.2.1 Connectivity will unlock value

The key economic and social value that New Zealand can derive from the Southern Link is increased connectivity. Increased connectivity drives economic and social progress by opening up opportunities that are currently beyond our reach.

Commitment around connectivity can only really be partially influenced by New Zealand. New Zealand does not have the means to develop all the airline services that provide durable connectivity. Prior to COVID-19, Air New Zealand did have flights into Buenos Aires. LATAM also had flights into Auckland and Australia. During the COVID-19 pandemic, there have been flights by South American airlines to Asia via the Southern Link (currently twice a month).

What is clear is that airline routing schedules are not wholly determined by economic considerations. There are social and political reasons for these arrangements.[45] All potential airlines that have an interest in the Southern Link have growth priorities and different economic and political drivers as they strive to improve their bottom line and/or satisfy their stakeholders.

Airline interest in the Southern Link will depend on onward connections, slot times, and transit times that could potentially be developed. Increasing connectivity between New Zealand and South America should not be seen in isolation, since wider airline strategies and interconnectivity that drive further airline profitability will need to be aligned with putting on a daily New Zealand-South American service, i.e. the need to create more value than some other alternative use for their aircraft.

According to one respondent, a key problem for Air New Zealand in the pre-COVID-19 times were that:

- The slot times given for arrival in both South America and Asia. Having slot times that tie up aircraft for 7 or 8 hours before they can return reduces the ability of airlines to utilise expensive capital efficiently. Therefore, it is more cost-effective to fly alternative routes where slot times are more favourable.
- It also inconveniences passengers. It is a big disincentive for travellers because of the waiting times for onward connections. Therefore, not being able to obtain the optimal slot times has a negative impact on demand since passengers will look for more favourable connections.

45 Interviews with respondents.

A concerted effort by like-minded governments on both sides of the Pacific (e.g. Chile and New Zealand) may encourage further investigation of the Southern Link by South American, New Zealand, and Asian airlines. From recent statements in a seminar hosted by the Latin American CAPE, there were suggestions that some South American governments would be willing to put some thought into how this link could be achieved (suggested by Vice Minister Yanez from Chile). Further, trade between Asia and South America is growing strongly. This is likely to increase, not decrease, trade connections which enhances the chances of a successful Southern Link being established. South America is seen as the 'last frontier' for Asian firms; therefore, the possibility that trade will grow quickly is quite high.

How airlines will respond is unclear. Most are still focused on surviving day-to-day in the COVID-19 era. What might come to pass in two years' time may not be at the top of their priority list. The current situation is dire for all airlines except for those companies operating freighters such as DHL and Fed Ex.

The most enthusiasm for the Southern Link is being expressed by the logistics companies who are close to the e-commerce platforms. They see the growth in e-commerce and the need for further connections between Asia and South America. Asendia is furthest along the track in their thinking and proving (to themselves) that it works, but it is unlikely that they will be the only ones interested. They have demonstrated that it works with advantages of comparable distances and prices, less congestion, and a more responsive regulatory regime in New Zealand.

Another plank to improving connectivity between New Zealand and South America is the trans-oceanic cable planned by Chile and mooted to land in Auckland and Australia. In July 2020, Chile announced plans to develop a trans-Pacific cable linking Chile with Sydney and Auckland. The exact plans for the cable have not been finalised, but the Chileans want to link up with Oceania and Asia. Significantly Argentina and Brazil have expressed support for the project, and Argentina has signed an initial cooperation agreement with Chile.[46]

The driving motivation for the Chileans is the hope that it will allow them to become a digital giant on their home continent, rolling out a 5G network that will support further connectivity and new technologies. For New Zealand, the trans-Pacific cable will underpin the services component of the Southern Link, supporting disputes settlement connectivity (both with Asia and South America) and business connections (increasing the attractiveness of New Zealand for Asian and South America as a location for coordinating activities). Other services generated by hub activity will also benefit from better connectivity.

7.2.2 Air services agreements

While the current proposal around the Southern Link is relatively new, both the Ministry of Foreign Affairs and the Ministry of Transport point to an interest in the Southern Link over a number of years, even going back into the 1980s. The key issue has been the lack of traffic.

While the conference hosted by the New Zealand China Council generated a deal of interest from stakeholders on the Southern Link, the outbreak of COVID - 19 has stifled the air connections between Oceania and South America. This has not stopped South American airlines such as LATAM and Aerolineas Argentinas from using New Zealand, primarily for refuelling, on flights to/from China, uplifting personal protective equipment.

46 https://drive.google.com/file/d/1A3X99I4dG105EZztUEwFrjSr6PceYUaA/view

During the COVID-19 lockdowns, the Ministry of Transport assisted these flights from South America to Asia via New Zealand. These occasional flights were greatly assisted by the air services agreements already in place with Chile and Argentina, i.e., there were few roadblocks for these flights to go ahead. These flights were authorised either under existing air services agreements and the relevant airline's licence or as non-scheduled flights under the Civil Aviation Act.

New Zealand's air services arrangements with Brazil, Chile and Argentina permit airlines from those countries to operate services to New Zealand and beyond to any points, including points in Asia, with any number of flights and with no restrictions on traffic.

Our air services arrangements with China permit Chinese pax carriers to operate beyond New Zealand to up to (potentially) six destinations in South America, but with a total of seven services per week. Any number of cargo-only services can be operated, with no restrictions as to the number of points in South America.

Japanese carriers can operate beyond New Zealand to South America with any number of services, but not from Tokyo. They have no rights from Tokyo to South America via New Zealand.

The above obviously does not cover all our air services arrangements in Asia and South America, which is an extensive list (Appendix B compares Australian and New Zealand Air Services Agreements with selected Asian and South American regions/countries).

The bilateral nature of Air Services Agreements does complicate matters. An air services arrangement between South American and Asian nations must explicitly allow services via New Zealand, e.g. the air services agreement between Chile and Japan does not automatically permit flights via New Zealand. It is not enough that New Zealand's air services arrangements with both Chile and Japan permit such a service with New Zealand.

7.2.3 Climate change: The Southern Link is a green route

All airlines are attempting to find ways to reduce fuel consumption. Since the 1960s, the average fuel burn for a new commercial jet aircraft has reduced by half.[47] However, the increase in the number of planes means that CO_2 emissions have increased five-fold.

One way mitigation can occur is by finding faster routes to destinations (see Appendix A). The Southern Link is faster than some routes from Asia into South America, and this potentially is an area where fuel can be saved. Reducing the fuel used reduces the carbon footprint and improves the attractiveness of the route.[48] The data in Appendix A does not factor in congestion at airports and congestion of flight routes since planes can fly the optimum routes.

The Southern Link also has the option of using shipping, particularly shipping from Asia to New Zealand. Shipping is a more efficient way of moving goods. Cargo vessels emit a fraction (4 percent) of the CO_2 per tonne relative to planes.[49]

Further, because New Zealand exports bulk commodities (in large volumes) and imports elaborately transformed goods (in smaller volumes), a large number of extra empty

47 Kharina A and Rutherford D (2015) Fuel efficiency trends for new commercial jet aircraft: 1960 to 2015. https://theicct.org/sites/default/files/publications/ICCT_Aircraft-FE-Trends_20150902.pdf

48 A lack of congestion means that planes are able to fly at optimum levels – saving significant time and fuel; are not being caught out by curfews (e.g. at Dubai and Sydney airport) which can result in significant delays. This allows for a simpler transit.

49 https://petrolog.typepad.com/climate_change/2009/09/carbon-emissions-from-aircraft-and-ships.html

containers are shipped to New Zealand to move commodity products. Potentially, a good proportion of the e-commerce trade shipped to New Zealand will replace empty containers – not impacting on or dramatically increasing the shipping carbon footprint of the e-commerce trade.

7.3 Factors out of our control

There is a growing trade and political relationship between Asia and South America (China in particular). These relationships are likely to grow and drive further trade. While the impetus for the Southern Link has come from business, the political drive for an emerging Southern Link through a small independent rules-based player such as New Zealand should not be underestimated.

The US-China relationship is unlikely to change, and this will have a major impact on the potential use of the Southern Link. Respondents note that customs clearance in the post 9/11 period has become increasingly more difficult.

One potential stumbling block is the COVID-led reduction in the growth of the middle class in South America. This will dampen down expectations for significant growth in all goods and services. Despite this, we expect strong initial growth in all goods trade.

7.4 Negative impacts (the costs)

7.4.1 E-commerce impact on the New Zealand market

If further e-commerce goods are allowed into the New Zealand market (because of the increased hubbing activity), there are likely to be some losses for New Zealand retailing businesses. However, the losses are likely to be small for the following reasons:

- The over $60 per item GST charge implemented in 2019 for goods purchased on overseas e-platforms (goods over $400 have always incurred GST).
- The lockdown period has increased e-commerce penetration into the New Zealand market further. Therefore, the likely impact will be less since COVID-19 has enhanced e-commerce sales.
- Retailers have reacted by introducing their own e-commerce businesses to compete. Not only have domestic retailers started and upgraded their e-commerce presence, but exporters have also geared up their e-commerce platforms in response to consumers increasing their online purchases. The increase in online activity has been given a huge boost by COVID-19, and in some cases, online sales by companies have grown dramatically. Chinese online sales grew by 16% last year in a market that already had a big exposure to online activity.

7.4.2 Competition from South American companies

Increased connectivity will allow South American companies access to New Zealand and Asian markets. Will that mean increased competition for New Zealand companies, particularly perishables such as cherries?

Perishables and other time-dependent goods require guaranteed transport and storage within tight timeframes. The experience of those attempting to bring perishables across to New Zealand and Australia from South America has been mixed. Issues include:

- Being offloaded because the crosswinds are too strong, and more fuel is required for the flight. Freight is the first thing that is offloaded. This was described as being “a bit of a nightmare” since they could never guarantee whether perishables would arrive on time.
- High freight costs. While prices might be encouraging in the Australian markets, profit margins are low, risks are high, and the domestic market (and other South American markets) were less risky and nearly as profitable.

Non-perishables have different attributes, and there may be competition from South American companies for these products. They have the advantage of not spoiling, so they are less time-dependent than perishables. However, the areas of competition would be restricted to small high-value products.

8 Conclusion

The Southern Link is an opportunity that could deliver considerable benefits to the New Zealand economy. Of importance is that:

- It puts New Zealand in the middle of a GVC when typically, New Zealand is at the far end of a GVC where it is difficult to increase its value add.
- It is a new trade route capitalising on:
  - The fast-growing international trade in e-commerce.
  - Increasingly strong ties between South America and Asia.
- Stronger interconnectivity between South America and New Zealand has the potential to generate value for Asian, South American, and New Zealand businesses.

The principal parts of the opportunity suggest that:

- Increased trade in e-commerce goods can spur increased connectivity between South America and New Zealand. This can be further capitalised on by the already strong multi-modal transport links with Asia.
- Increased tourism driven by increased air connectivity gives tourists more options and more reasons to include New Zealand and South America on their tourist itineraries.
- Increased international students as connectivity increases. However, this will take time to grow.
- Increased economic activity as trade between South America and Asia grows. This could include dispute settlement services, legal, accounting and New Zealand being seen as the preferred country to coordinate Asian exports from South America.

We must stress that there are limitations in the quantified analysis due to the information available on different aspects. The robustness of the analysis is influenced by the potential bias in the information provided, which are based on company aims and ambitions.

The figures in this report should be regarded as an order of magnitude calculation rather than a definitive measure, and the analysis can use improved information as the opportunities become clearer.

Appendix A Potential air routes from Asia to South America

Table 4 Distances between Asia and South America (from Guangzhou)

From Guangzhou	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	18,568	11.00	53,900	Santiago	19,306	11.30	55,370	109,270	22.30	37,874
				Sao Paolo	24,048	14.00	68,600	122,500	25.00	42,616
				Bogota	24,374	21.25	104,125	158,025	32.25	42,942
				Buenos Aires	20,682	14.33	70,217	124,117	25.33	39,250
Christchurch	19,116	11.15	54,635	Santiago	18,654	11.00	53,900	108,535	22.15	37,770
				Sao Paolo	23,150	15.30	74,970	129,605	26.45	42,266
				Bogota	24,474					43,590
				Buenos Aires	19,838	12.83	62,867	117,502	23.98	38,954
Dubai	11,660	7.40	36,260	Santiago	29,546	18.00	88,200	124,460	25.4	41,206
				Sao Paolo	24,434	15.00	73,500	109,760	22.40	36,094
				Bogota	27,260	20.25	99,225	135,485	27.65	63,520
				Buenos Aires	27,318	19.58	95,942	132,202	26.98	38,978
Melbourne[4]	15,046	9.20	45,080	Santiago	22,596	13.25	64,925	110,005	22.45	37,642
				Sao Paolo	26,240	20.17	98,833	143,913	29.37	41,286
				Bogota	29,260	18.00	88,200	133,280	27.20	44,306
				Buenos Aires	23,268	14.95	73,255	118,335	24.15	38,314
London	19,034	11.50	56,350	Santiago	23,308	15.00	73,500	129,850	26.50	42,342
				Sao Paolo	18,922	12.71	62,279	118,629	24.21	37,956
				Bogota	16,946	11.17	54,733	111,083	22.67	35,980

From Guangzhou	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Buenos Aires	22,214	13.67	66,983	123,333	25.17	41,248
Madrid	20,788	14.00	68,600	Santiago	21,436	13.42	65,758	134,358	27.42	42,224
				Sao Paolo	16,756	12.41	60,809	129,409	26.41	37,544
				Bogota	16,062	10.50	51,450	120,050	24.50	36,850
				Buenos Aires	20,112	12.75	62,475	131,075	26.75	40,900

Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover. (4) We have used Melbourne as the potential competitor because of the congestion at Sydney Airport and the flight curfew imposed overnight. Also, LATAM flies into Melbourne.

Source: Compiled by the New Zealand China Council

Table 5 Distances between Asia and South America (from Shanghai)

From Shanghai	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	18,806	11.15	54,635	Santiago	19,306	11.3	55,370	110,005	22.45	38,112
				Sao Paolo	24,048	14	68,600	123,235	25.15	42,854
				Bogota	24,374	21.25	104,125	158,760	32.40	43,180
				Buenos Aires	20,682	14.33	70,217	124,852	25.48	20,693
Christchurch	19,602	14.5	71,050	Santiago	18,654	11	53,900	124,950	25.50	38,256
				Sao Paolo	23,150	15.3	74,970	146,020	29.80	42,752
				Bogota	24,474					44,076
				Buenos Aires	19,838	12.83	62,867	133,917	27.33	39,440
Dubai	12,808	9.83	48,167	Santiago	29,546	18	88,200	136,367	27.83	42,353
				Sao Paolo	24,434	15	73,500	121,667	15.00	37,242
				Bogota	27,260	20.25	99,225	147,392	30.08	40,068
				Buenos Aires	27,318	19.58	95,942	144,109	29.41	40,126

From Shanghai	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Melbourne	16,072	10.75	52,675	Santiago	22,596	13.25	64,925	117,600	24.00	38,668
				Sao Paolo	26,240	20.17	98,833	151,508	30.92	42,312
				Bogota	29,260	18	88,200	140,875	28.75	45,332
				Buenos Aires	23,268	14.95	73,255	125,930	25.70	39,340
London	18,424	12.67	62,083	Santiago	23,308	15	73,500	135,583	27.67	41,732
				Sao Paolo	18,922	12.71	62,279	124,362	12.71	37,346
				Bogota	16,946	11.167	54,733	116,816	23.84	35,370
				Buenos Aires	22,214	13.67	66,983	129,066	26.34	40,638
Madrid	20,476	16.17	79,233	Santiago	21,436	13.42	65,758	144,991	29.59	41,912
				Sao Paolo	16,756	12.41	60,809	140,042	12.41	37,232
				Bogota	16,062	10.5	51,450	130,683	26.67	36,538
				Buenos Aires	20,112	12.75	62,475	141,708	28.92	40,588
Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.										

Source: Compiled by the New Zealand China Council

Table 6 Distances between Asia and South America (from Hong Kong)

From Hong Kong	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	18,302	11.00	53,900	Santiago	19,306	11.30	55,370	109,270	22.30	37,608
				Sao Paolo	24,048	14.00	68,600	122,500	25.00	42,350
				Bogota	24,374	21.25	104,125	158,025	32.25	42,676
				Buenos Aires	20,682	14.33	70,217	124,117	25.33	38,984
Christchurch	18,854	13.50	66,150	Santiago	18,654	11.00	53,900	120,050	24.50	37,508

From Hong Kong	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Sao Paolo	23,150	15.30	74,970	141,120	28.80	42,004
				Bogota	24,474					43,328
				Buenos Aires	19,838	12.83	62,867	129,017	26.33	38,692
Dubai	11,898	9.00	44,100	Santiago	29,546	18.00	88,200	132,300	27.00	41,444
				Sao Paolo	24,434	15.00	73,500	117,600	24.00	36,332
				Bogota	27,260	20.25	99,225	143,325	29.25	39,158
				Buenos Aires	27,318	19.58	95,942	140,042	28.58	39,216
Melbourne	14,798	9.00	44,100	Santiago	22,596	13.25	64,925	109,025	22.25	37,394
				Sao Paolo	26,240	20.17	98,833	142,933	29.17	41,038
				Bogota	29,260	18.00	88,200	132,300	27.00	44,058
				Buenos Aires	23,268	14.95	73,255	117,355	23.95	38,066
London	19,292	13.25	64,925	Santiago	23,308	15.00	73,500	138,425	28.25	42,600
				Sao Paolo	18,922	12.71	62,279	127,204	25.96	38,214
				Bogota	16,946	11.17	54,733	119,658	24.42	36,238
				Buenos Aires	22,214	13.67	66,983	131,908	26.92	41,506
Madrid	21,052	14.00	68,600	Santiago	21,436	13.42	65,758	134,358	27.42	42,488
				Sao Paolo	16,756	12.41	60,809	129,409	26.41	37,808
				Bogota	16,062	10.50	51,450	120,050	24.50	37,114
				Buenos Aires	20,112	12.75	62,475	131,075	26.75	41,164

Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.

Source: Compiled by the New Zealand China Council

Table 7 Distances between Asia and South America (from Singapore)

From Singapore	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	16,820	9.83	48,167	Santiago	19,306	11.30	55,370	103,537	21.13	36,126
				Sao Paolo	24,048	14.00	68,600	116,767	23.83	40,868
				Bogota	24,374	21.25	104,125	152,292	31.08	41,194
				Buenos Aires	20,682	14.33	70,217	118,384	24.16	37,502
Christchurch	16,808	9.83	48,167	Santiago	18,654	11.00	53,900	102,067	20.83	35,462
				Sao Paolo	23,150	15.30	74,970	123,137	25.13	39,958
				Bogota	24,474					41,282
				Buenos Aires	19,838	12.83	62,867	111,034	22.66	36,646
Dubai	11,694	7.75	37,975	Santiago	29,546	18.00	88,200	126,175	25.75	41,240
				Sao Paolo	24,434	15.00	73,500	111,475	22.75	36,128
				Bogota	27,260	20.25	99,225	137,200	28.00	38,954
				Buenos Aires	27,318	19.58	95,942	133,917	27.33	39,012
Melbourne	12,066	7.50	36,750	Santiago	22,596	13.25	64,925	101,675	20.75	34,662
				Sao Paolo	26,240	20.17	98,833	135,583	27.67	38,306
				Bogota	29,260	18.00	88,200	124,950	25.50	41,326
				Buenos Aires	23,268	14.95	73,255	110,005	22.45	35,334
London	21,764	14.25	69,825	Santiago	23,308	15.00	73,500	143,325	29.25	45,072
				Sao Paolo	18,922	12.71	62,279	132,104	26.96	40,686
				Bogota	16,946	11.17	54,733	124,558	25.42	38,710
				Buenos Aires	22,214	13.67	66,983	136,808	27.92	43,978
Madrid	22,764	15.45	75,705	Santiago	21,436	13.42	65,758	141,463	28.87	44,200
				Sao Paolo	16,756	12.41	60,809	136,514	27.86	39,520

From Singapore	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Bogota	16,062.00	10.50	51,450	127,155	25.95	38,826
				Buenos Aires	20,112.00	12.75	62,475	138,180	28.20	42,876
Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.										

Source: Compiled by the New Zealand China Council

Table 8 Distances between Asia and South America (from Narita)

From Narita	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	17,684	10.75	52,675	Santiago	19,306	11.30	55,370	108,045	22.05	36,990
				Sao Paolo	24,048	14.00	68,600	121,275	24.75	41,732
				Bogota	24,374	21.25	104,125	156,800	32.00	42,058
				Buenos Aires	20,682	14.33	70,217	122,892	25.08	38,366
Christchurch	18,788	11.5	56,350	Santiago	18,654	11.00	53,900	110,250	22.50	37,442
				Sao Paolo	23,150	15.30	74,970	131,320	26.80	41,938
				Bogota	24,474					43,262
				Buenos Aires	19,838	12.83	62,867	119,217	24.33	38,626
Dubai	15,868	10.5	51,450	Santiago	29,546	18.00	88,200	139,650	28.50	45,508
				Sao Paolo	24,534	15.00	73,500	124,950	25.50	40,302
				Bogota	27,260	20.25	99,225	150,675	30.75	43,128
				Buenos Aires	27,318	19.58	95,942	147,392	30.08	43,186
Melbourne	16,316	10.50	51,450	Santiago	22,596	13.25	64,925	116,375	23.75	38,952
				Sao Paolo	26,240	20,17	98,833	150,283	30.67	42,556

From Narita	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Bogota	29,260	18.00	88,200	139,650	28.50	45,576
				Buenos Aires	23,268	14.95	73,255	124,705	25.45	39,584
London	19,182	12.5	61,250	Santiago	23,308	15.00	73,500	134,750	27.50	42,490
				Sao Paolo	18,922	12.71	62,279	123,529	25.21	38,104
				Bogota	16,946	11.17	54,733	115,983	23.67	36,128
				Buenos Aires	22,214	13.67	66,983	128,233	26.17	41,396
Madrid	21,538	13.92	68,208	Santiago	21,436	13.42	65,758	133,966	27.34	42,980
				Sao Paolo	16,756	12.41	60,809	129,017	26.33	38,292
				Bogota	16,062	10.50	51,450	119,658	24.42	37,598
				Buenos Aires	20,112	12.75	62,475	130,683	26.67	41,648
Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.										

Source: Compiled by the New Zealand China Council

Table 9 Distances between Asia and South America (from Taiwan)

From Taiwan	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	20,978	11.00	53,900	Santiago	19,306	11.30	55,370	109,270	22.30	40,284
				Sao Paulo	24,048	14.00	68,600	122,500	25.00	45,026
				Bogota	24,374	21.25	104,125	158,025	32.25	45,352
				Buenos Aires	20,682	14.33	70,217	124,117	25.33	41,660
Christchurch	21,746	13.83	67,767	Santiago	18,654	11.00	53,900	121,667	24.83	40,400

From Taiwan	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Sao Paulo	23,150	15.30	74,970	142,737	29.13	44,896
				Bogota	24,474					46,220
				Buenos Aires	19,838	12.83	62,867	130,634	26.66	41,584
Dubai	11,022	8.25	40,425	Santiago	29,546	18.00	88,200	128,625	26.25	40,568
				Sao Paulo	24,434	15.00	73,500	113,925	23.25	35,456
				Bogota	27,260	20.25	99,225	139,650	28.50	38,282
				Buenos Aires	27,318	19.58	95,942	136,367	27.83	38,340
Melbourne	18,046	9.5	46,550	Santiago	22,596	13.25	64,925	111,475	22.75	40,642
				Sao Paulo	26,240	20.17	98,833	145,383	29.67	44,286
				Bogota	29,260	18.00	88,200	134,750	27.50	47,306
				Buenos Aires	23,268	14.95	73,255	119,805	24.45	41,314
London	16,300	14	68,600	Santiago	23,308	15.00	73,500	142,100	29.00	39,608
				Sao Paulo	18,922	12.71	62,279	130,879	26.71	35,222
				Bogota	16,946	11.17	54,733	123,333	25.17	33,246
				Buenos Aires	22,214	13.67	66,983	135,583	27.67	38,514
Madrid	18,308	15.25	74,725	Santiago	21,436	13.42	65,758	140,483	28.67	39,744
				Sao Paulo	16,756	12.41	60,809	135,534	27.66	35,064
				Bogota	16,062	10.50	51,450	126,175	25.75	34,370
				Buenos Aires	20,112	12.75	62,475	137,200	28.00	38,420

Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.

Source: Compiled by the New Zealand China Council

Table 10 Distances between Asia and South America (from South Korea)

From South Korea	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	19,314	11.15	54,635	Santiago	19,306	11.30	55,370	110,005	22.45	38,620
				Sao Paolo	24,048	14.00	68,600	123,235	25.15	43,362
				Bogota	24,374	21.25	104,125	158,760	32.40	43,688
				Buenos Aires	20,682	14.33	70,217	124,852	25.48	39,996
Christchurch	20,260	15.00	73,500	Santiago	18,654	11.00	53,900	127,400	26.00	38,914
				Sao Paolo	23,150	15.30	74,970	148,470	30.30	43,410
				Bogota	24,474					44,734
				Buenos Aires	19,838	12.83	62,867	136,367	27.83	40,098
Dubai	13,458	10.25	50,225	Santiago	29,546	18.00	88,200	138,425	28.25	43,004
				Sao Paolo	24,434	15.00	73,500	123,725	25.25	37,892
				Bogota	27,260	20.25	99,225	149,450	30.50	40,718
				Buenos Aires	27,318	19.58	95,942	146,167	29.83	40,776
Melbourne	17,128	13.33	65,317	Santiago	22,596	13.25	64,925	130,242	26.58	39,724
				Sao Paolo	26,240	20.167	98,833	164,150	33.50	43,368
				Bogota	29,260	18.00	88,200	153,517	31.33	46,388
				Buenos Aires	23,268	14.95	73,255	138,572	28.28	40,396
London	17,722	12.50	61,250	Santiago	23,308	15.00	73,500	134,750	27.50	41,030
				Sao Paolo	18,922	12.71	62,279	123,529	25.21	36,644
				Bogota	16,946	11.17	54,733	115,983	23.67	34,668
				Buenos Aires	22,214	13.67	66,983	128,233	26.17	39,936
Madrid	19,930	15.50	75,950	Santiago	21,436	13.42	65,758	141,708	28.92	41,366

From South Korea	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Sao Paolo	16,756	12.41	60,809	136,759	27.91	36,686
				Bogota	16,062	10.50	51,450	127,400	26.00	35,992
				Buenos Aires	20,112	12.75	62,475	138,425	28.25	40,042
Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.										

Source: Compiled by the New Zealand China Council

Table 11 Distances between Asia and South America (from Ho-Chi Min)

From Ho – Chi Min	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	17,722	12.83	62,867	Santiago	19,306	11.30	55,370	118,237	24.13	37,028
				Sao Paulo	24,048	14.00	68,600	131,467	26.83	41,770
				Bogota	24,374	21.25	104,125	166,992	34.08	42,096
				Buenos Aires	20,682	14.33	70,217	133,084	27.16	38,404
Christchurch	17,940	13.83	67,767	Santiago	18,654	11.00	53,900	121,667	24.83	36,594
				Sao Paulo	23,150	15.30	74,970	142,737	29.13	41,090
				Bogota	24,474					42,414
				Buenos Aires	19,838	12.83	62,867	130,634	26.66	37,778
Dubai	11,240	7.17	35,133	Santiago	29,546	18.00	88,200	123,333	25.17	40,786
				Sao Paulo	24,434	15.00	73,500	108,633	22.17	35,674
				Bogota	27,260	20.25	99,225	134,358	27.42	35,674
				Buenos Aires	27,318	19.58	95,942	131,075	26.75	38,558
Melbourne	13,394	8.83	43,267	Santiago	22,596	13.25	64,925	108,192	22.08	35,990

From Ho – Chi Min	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Sao Paulo	26,240	20.16	98,833	142,100	28.99	39,634
				Bogota	29,260	18.00	88,200	131,467	26.83	42,654
				Buenos Aires	23,268	14.95	73,255	116,522	23.78	36,662
London	20,438	12.83	62,867	Santiago	23,308	15.00	73,500	136,367	27.83	43,746
				Sao Paulo	18,922	12.71	62,279	125,146	25.54	39,360
				Bogota	16,946	11.17	54,733	117,600	24.00	37,384
				Buenos Aires	22,214	13.67	66,983	129,850	26.50	42,652
Madrid	21,760	14.00	68,600	Santiago	21,436	13.42	65,758	134,358	27.42	43,196
				Sao Paulo	16,756	12.41	60,809	129,409	26.41	38,516
				Bogota	16,062	10.50	51,450	120,050	24.50	37,822
				Buenos Aires	20,112	12.75	62,475	131,075	26.75	41,872

Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.

Source: Compiled by the New Zealand China Council

Table 12 Distances between Asia and South America (from Bangkok)

From Bangkok	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	19,168	11.25	55,125	Santiago	19,306	11.30	55,370	110,495.00	22.55	38,474
				Sao Paulo	24,048	14.00	68,600	123,725.00	25.25	43,216
				Bogota	24,374	21.25	104,125	159,250.00	32.5	43,542
				Buenos Aires	20,682	14.33	70,217	125,342.00	25.58	39,850
Christchurch	19,340	12.5	61,250	Santiago	18,654	11.00	53,900	115,150	23.50	37,994

From Bangkok	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Sao Paulo	23,150	15.30	74,970	136,220	27.80	42,490
				Bogota	24,474					43,814
				Buenos Aires	19,838	12.83	62,867	124,117	25.33	39,178
Dubai	9,762	6.92	33,908	Santiago	29,546	18.00	88,200	122,108	24.92	39,308
				Sao Paulo	24,434	15.00	73,500	107,408	21.92	34,196
				Bogota	27,260	20.25	99,225	133,133	27.17	37,022
				Buenos Aires	27,318	19.58	95,942	129,850	26.50	37,080
Melbourne	14,720	9.50	46,550	Santiago	22,596	13.25	64,925	111,475	22.75	37,316
				Sao Paulo	26,240	20.17	98,833	145,383	29.667	40,960
				Bogota	29,260	18.00	88,200	134,750	27.50	43,980
				Buenos Aires	23,268	14.95	73,255	119,805	24.45	37,988
London	19,096	13.083	64,106	Santiago	23,308	15.00	73,500	137,606	28.083	42,404
				Sao Paulo	18,922	12.71	62,279	126,385	25.79	38,018
				Bogota	16,946	11.17	54,733	118,839	24.25	36,042
				Buenos Aires	22,214	13.67	66,983	131,089	26.75	41,310
Madrid	20,330	17.75	86,975	Santiago	21,436	13.42	65,758	152,733	31.17	41,766
				Sao Paulo	16,756	12.41	60,809	147,784	30.16	37,086
				Bogota	16,062	10.50	51,450	138,425.	28.25	36,392
				Buenos Aires	20,112	12.75	62,475	149,450	30.50	40,442

Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.

Source: Compiled by the New Zealand China Council

Table 13 Distances between Asia and South America (from O'saka)

From O'saka	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	17,920	10.92	53,508	Santiago	19,306	11.30	55,370	108,878	22.22	37,178
				Sao Paulo	24,048	14.00	68,600	122,108	24.92	41,968
				Bogota	24,374	21.25	104,125	157,633	32.17	42,294
				Buenos Aires	20,682	14.33	70,217	123,725	25.25	38,602
Christchurch	18,960		55,125	Santiago	18,654	11.00	53,900	109,025		37,560
				Sao Paulo	23,150	15.30	74,970	130,095		42,110
				Bogota	24,474					43,434
				Buenos Aires	19,838	12.83	62,867	117,992		38,798
Dubai	15,168	11.25	55,125	Santiago	29,546	18.00	88,200	143,325	29.25	44,702
				Sao Paulo	24,434	15.00	73,500	128,625	26.25	39,602
				Bogota	27,260	20.25	99,225	154,350	31.5	42,428
				Buenos Aires	27,318	19.58	95,942	151,067	30.83	42,486
Melbourne	16,228	12.33	60,417	Santiago	22,596	13.25	64,925	125,342	25.58	38,750
				Sao Paulo	26,240	20.16	98,833	159,250	32.497	42,468
				Bogota	29,260	18.00	88,200	148,617	30.33	45,488
				Buenos Aires	23,268	14.95	73,255	133,672	27.28	39,496
London	19,010	15.00	73,500	Santiago	23,308	15.00	73,500	147,000	30	42,372
				Sao Paulo	18,922	12.71	62,279	135,779	27.71	37,932
				Bogota	16,946	11.17	54,733	128,233	26.17	35,956
				Buenos Aires	22,214	13.67	66,983	140,483	28.67	41,224
Madrid	21,308			Santiago	21,436	13.42	65,758			42,794
				Sao Paulo	16,756	12.41	60,809			38,064

From O'saka	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Bogota	16,062	10.50	51,450			37,370
				Buenos Aires	20,112	12.75	62,475			41,420

Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover. (4) We have used O'saka since it is much less congested than Narita. Many of the air service agreements between Japan and other countries restrict access to Narita.

Source: Compiled by the New Zealand China Council

Table 14 Distances between Asia and South America (from Beijing)

From Beijing	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
Auckland	20,850	12.75	62,475	Santiago	19,306	11.30	55,370	117,845	24.05	40,156
				Sao Paulo	24,048	14.00	68,600	131,075	26.75	44,898
				Bogota	24,374	21.25	104,125	166,600	34.00	45,224
				Buenos Aires	20,682	14.33	70,217	132,692	27.08	41,532
Christchurch	21,700	13.5	66,150	Santiago	18,654	11.00	53,900	120,050	24.50	40,354
				Sao Paulo	23,150	15.30	74,970	141,120	28.80	44,850
				Bogota	24,474					46,174
				Buenos Aires	19,838	12.83	62,867	129,017	26.33	41,538
Dubai	11,692	9.83	48,167	Santiago	29,546	18.00	88,200	136,367	27.83	41,238
				Sao Paulo	24,434	15.00	73,500	121,667	24.83	36,126
				Bogota	27,260	20.25	99,225	147,392	30.08	38,952
				Buenos Aires	27,318	19.58	95,942	144,109	29.41	39,010
Melbourne	18,218	11.5	56,350	Santiago	22,596	13.25	64,925	121,275	24.75	40,814
				Sao Paulo	26,240	20.17	98,833	155,183	31.66	44,458

From Beijing	Distance (kms)	Estimated time	Dreamliner (kgs)	Destination	Distance (first leg of journey)	Estimated time (second leg)	Dreamliner (kgs)	Total fuel burn	Total flight time	Total Distance (kms)
				Bogota	29,260	18.00	88,200	144,550	29.50	47,478
				Buenos Aires	23,268	14.95	73,255	129,605	26.45	41,486
London	16312	11.5	56,350.00	Santiago	23,308	15.00	73,500	129,850	26.50	39,620
				Sao Paulo	18,922	12.71	62,279	118,629	24.21	35,234
				Bogota	16,946	11.17	54,733	111,083	22.67	35,234
				Buenos Aires	22,214	13.67	66,983	123,333	25.17	38,526
Madrid	18416	12	58,800.00	Santiago	21,436	13.42	65,758	124,558	25.42	39,852
				Sao Paulo	16,756	12.41	60,809	119,609	24.41	35,172
				Bogota	16,062	10.50	51,450	110,250	22.50	34,478
				Buenos Aires	20,112	12.75	62,475	121,275	24.75	38,528

Notes (1) A standard Dreamliner flies at 902.84 km per hour. (2) Average fuel burn for a 787-8 is 4,900 per hour. (3) Figures in red indicate no direct flight, so time may include a stopover.

Source: Compiled by the New Zealand China Council

Appendix B Comparison of Australian and New Zealand Air Service Agreements with selected Asian and South American regions

New Zealand places emphasis on establishing open skies agreements with key markets even if the offer is not reciprocated. This is because New Zealand is focused on what is good for New Zealand (passengers and freight), not gaining concessions out of bilateral partners to favour one carrier over another.

Table 15 Bilateral and multilateral agreements

Region/country	New Zealand Air Service Agreements	Australian Air Service Agreements	Comment
Asia			
China	5th freedom	5th freedom	New Zealand: Capacity increased to 59 weekly frequencies in each direction. Australia no limitation as to routes, capacity, frequency or aircraft type.
Hong Kong	5th freedom	5th freedom	Routes specified in each direction. New Zealand: no restrictions on non-stop services.
Singapore	Open skies agreement	5th freedom	New Zealand: Open skies. Australia: A large number of specified routes for designated airlines both ways.
Japan	3rd,4th, 5th Freedoms	5th freedom	New Zealand: daily services from Narita, unlimited slots and services for other destinations. Australia: Specified routes for designated airlines both ways.
Taiwan	Open skies agreement	n/a	
South Korea	5th freedom	5th freedom	New Zealand: 11 frequencies per week. Australia: Specified routes for designated airlines both ways.
Vietnam	3rd, 4th, 5th freedom	5th freedom	New Zealand: Up to 14 frequencies per week. Australia: Specified routes for designated airlines both ways.
Thailand	5th freedom	5th freedom	New Zealand: up to 21 frequencies per week. Australia: Specified routes for designated airlines both ways.
Malaysia	Open skies agreement	5th freedom	New Zealand: Open skies. Australia: A large number of specified routes for designated airlines both ways.
Indonesia	5th freedom	5th freedom	New Zealand has 14 combined services per week limited to 400 passengers with 3rd and 4th

Region/country	New Zealand Air Service Agreements	Australian Air Service Agreements	Comment
			freedoms. On 7 of these services, 5th freedoms may be excised. Australia: rights granted to specific airlines flying designated routes.
South America			
Argentina	Freedoms numbers 1 through 6	5th freedom	For New Zealand no limitation as to routes, capacity, frequency or aircraft type. Australia a specific route with stopovers in Auckland, NZ.
Chile	Open skies agreement	Freedoms 1 through 7	New Zealand open skies. Australia Chile via intermediate points in French Polynesia and New Zealand, to three points in Australia and beyond to three points in Southeast Asia and two additional points of choice.
Brazil	Freedom numbers 3, 4, 5, & 6	Freedoms 7 and 8	The designated airline determines frequency and capacity
Peru	Open skies agreement	Undergoing treaty process	
Colombia	Undergoing treaty process	Undergoing treaty process	
Description of air freedoms can be found at https://www.icao.int/Pages/freedomsAir.aspx			

Source: MFAT, MoT, DFAT, https://www.infrastructure.gov.au/aviation/international/agreements.aspx