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So far yet so close:
Connecting New Zealand to the global economy

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The New Zealand Institute

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‘So far yet so close’ is the sixth paper in a series that forms part of the New Zealand Institute’s research project on ‘Creating a global New Zealand economy’. This paper follows on from our first five papers ‘No country is an island’, ‘Dancing with the stars?’, ‘The flight of the Kiwi’, ‘Developing Kiwi global champions’, and ‘Competing to win’.

FOREWORD:
CREATING A GLOBAL NEW ZEALAND ECONOMY

The New Zealand economy has performed well over the past 15 years, with economic growth rates that exceed those generated in previous decades and that compare well against the US and Australia.

The challenge now is to build on this good performance, so that New Zealand's income levels converge to those of other developed countries. Sustaining high rates of economic growth into the future will necessarily involve a substantial increase in labour productivity growth.

New Zealand is a small economy, and substantially raising New Zealand's labour productivity will require much greater levels of exporting and foreign investment by New Zealand firms. Exporting and investing offshore provides scale, growth opportunities for New Zealand's most productive firms, and great learning opportunities for New Zealand firms. New Zealand cannot achieve and sustain high rates of productivity growth without making much greater use of larger markets through international activity.

However, New Zealand's international performance does not compare well against many other developed countries, and only a small number of New Zealand companies are substantially engaged in international markets in terms of either exporting or investing. New Zealand is not participating in increased international economic activity to the extent that many other countries are.

Of course, New Zealand firms do face particular difficulties in terms of moving into international markets because of the small size and remoteness of the New Zealand market. It is this combination of the importance of international engagement, and the difficulties that some New Zealand firms face in going global, that provides the motivation for this project.

This project is being undertaken to identify the actions and policies that will move New Zealand towards becoming a genuinely global economy, in which much more of New Zealand's national income is generated offshore and where New Zealand firms win systematically abroad.

Over the past several months, we have released a series of reports examining different aspects of this issue. Initial reports have described why taking the New Zealand economy to the world is vitally important, examined New Zealand's current exporting and international investment outcomes, and identified some of the key reasons that New Zealand's international outcomes do not compare well against other small, developed countries.

An important part of this project is conversations with a wide range of business and political leaders about the key issues and the actions that can be taken to increase exporting and international investment by New Zealand firms.

This has provided the basis for additional reports that focus on a range of solutions. The aim of the project is to identify the actions of government, business, and others, which are required in order to take the New Zealand economy to the world in a material and successful way. Creating a global New Zealand economy is an important but demanding challenge, and will require sustained leadership from both the private and public sectors.

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EXECUTIVE SUMMARY

New Zealand is the most remote developed country in the world relative to international markets. This physical location means that the efficiency of New Zealand's supply chains – the ways in which New Zealand firms are able to transport their goods and services to offshore markets – is of significant economic importance.

The competitive position of firms is increasingly influenced by the speed, cost, and responsiveness with which they can get goods and services to market. So the success with which New Zealand companies can go global from a New Zealand base will be strongly influenced by the quality of New Zealand's connections with the rest of the world.

There has, of course, been major progress in international communications and transport over the past century. The time to ship goods to the other side of the world has reduced, the introduction of air traffic has enabled the rapid movement of people and goods, and communication costs have reduced substantially.

However, despite these developments New Zealand remains disadvantaged in terms of its supply chain links with offshore markets. Distance is not dead. It takes longer and costs more to get New Zealand's goods and services to market than from many other countries.

Transporting New Zealand's exports to market still takes a long time; for example, it takes over a month to get goods to Europe by sea. In terms of air links, New Zealand's international connectedness does not compare well to other developed countries. As a consequence, New Zealand firms are not well placed to participate in areas of the global economy where speed to market matters.

New Zealand's international connectedness has improved but significant gaps remain relative to other countries, and it is relative positioning that drives the competitiveness of firms. Compared to firms in most other developed countries, New Zealand firms are at a competitive disadvantage in terms of the quality of their international supply chains.

This constrains the ability of New Zealand firms to go global, and goes some way to explaining why New Zealand's international economic engagement lags most other developed countries. Indeed, New Zealand's international economic performance provides little indication that the tyranny of distance has reduced for New Zealand over the past few decades.

So what can be done to strengthen New Zealand's links to the rest of the world? Three classes of response are identified: strengthening New Zealand's international air and shipping links; developing new business models in which production and distribution takes place close to the end-market; and developing virtual supply chains to enable weightless economic value to

be transported electronically from New Zealand to offshore markets.

Strengthening air and shipping links

84% by value of New Zealand's merchandise trade is transported by sea, and so it is important to ensure that shipping lines have an incentive to service New Zealand well, that New Zealand ports have appropriate incentives to invest in the next generation of infrastructure to service larger ships, and that domestic road and rail infrastructure is aligned with the investments made at the ports.

In terms of strengthening New Zealand's air links, there are two actions that should be taken in addition to continuing to invest in airport infrastructure. First, promoting inbound tourism should be an ongoing priority. In addition to tourism being a major export category in its own right, tourism flows are the major support for New Zealand's business travel and air cargo capacity. And second, ensuring that New Zealand continues to be serviced by a national airline that is committed to connecting New Zealand to the rest of the world. These strategic considerations should be central to any government decision-making around its ownership stake in Air New Zealand.

However, although worthwhile, these measures are unlikely to lead to substantial improvements in New Zealand's international connectedness. These actions are best seen as ways to ensure that New Zealand's existing links are not degraded. Some more creative actions are required in order to lead to an improvement in the competitive position of New Zealand firms.

Re-thinking location

One way for New Zealand firms to overcome the constraints due to New Zealand's supply chain links is to change the location of their production and distribution activity. To the extent that New Zealand firms invest in offshore markets to establish a production presence closer to the end-consumer or to international transport infrastructure, or contract this production out to other firms in these locations, they will be able to access supply chains that are not subject to New Zealand's disadvantages.

This type of business model allows New Zealand firms to compete on the same basis as their international competitors. Indeed, such activity is widespread internationally, with many firms developing a global presence. Unsurprisingly, firms are much more likely to locate their production activities in a foreign market rather than export from their home market when the foreign market is a long way away.

In addition to these supply chain benefits, this approach also provides significant growth options for New Zealand firms. For example, contracting out production to offshore

firms may allow New Zealand firms to expand offshore in a relatively low cost and low risk manner, to access high quality, large scale production facilities, and overcome various input constraints that exist in New Zealand such as the emerging skills shortage.

A growing number of New Zealand firms are involved in this type of activity. However, New Zealand's overall levels of outward direct investment and offshoring activity are much lower than in many other developed countries. Taking advantage of this potential will require significant changes in terms of the capacity and aspiration of New Zealand firms, together with a more encouraging public policy environment in terms of promoting savings and capital markets, international tax, and the nature of New Zealand Trade & Enterprise's activities.

Virtual supply chains

Another way in which New Zealand can overcome distance is to invest in developing virtual supply chains to allow New Zealand firms to exploit strengths in the 'weightless economy': economic activity that can be exported through communications technology. This could include activities such as the creative industries, call centres, financial services, and business services like advertising or consulting.

Placing greater reliance on virtual supply chains reduces the disadvantages of physical remoteness while simultaneously playing to New Zealand's strengths in terms of being creative and innovative. Producing high value, low weight goods and services is likely to be an area in which New Zealand can generate real competitive advantage.

At the moment, only about 5% of New Zealand's export base can be defined as weightless. But there is substantial growth potential. The ability for New Zealand firms to use virtual supply chains could be as transformational as refrigerated shipping was for the New Zealand economy over a century ago. But investments need to be made to develop these virtual supply chains in order to obtain these benefits. In particular, it is important to develop a world-class communications infrastructure within New Zealand that links New Zealand to the world.

Summary

It has never been easier for New Zealand to connect to the world, with the development of communications technology and new business models. The global economy is not so far away when New Zealand's connections are virtual rather than physical in nature. But in order to take advantage of these opportunities, New Zealand needs to act with real seriousness of purpose in terms of continuing to develop new business models and in terms of public policy.

CREATING A GLOBAL NEW ZEALAND ECONOMY: PROJECT STRUCTURE

No Country is an Island
The importance of international economic engagement for New Zealand's economic future

↓

Dancing with the Stars?
New Zealand's level of exports and outward FDI does not compare well to other countries

↓

The Flight of the Kiwi
Identifies four classes of solutions to create a global New Zealand economy

↓

Detailed Analysis and Recommendations
To be contained in four reports

1. Developing Kiwi global champions
2. New Zealand's external strategy
3. Connecting to the world
4. The New Zealand economy 2.0

1 INTRODUCTION

Because of the small size of New Zealand's domestic market, international economic engagement matters significantly for New Zealand's economic prospects. However, New Zealand's remote physical location makes international expansion by New Zealand firms more difficult as has been discussed in previous New Zealand Institute reports.[1]

Some have argued that a country's physical location matters much less than it did a few decades ago because of the revolutions in transportation and communications technology. An extreme version of this argument is that distance is dead or that the world is flat.

In this case, New Zealand firms ought to be in a much strengthened competitive position relative to a few decades back when transport and communication links were not as well developed. However, New Zealand's continued low level of international economic engagement relative to other countries suggests that the rumours of the death of distance have been exaggerated.

New Zealand is the most physically remote developed country in the world, and this has significant effects on the behaviour and performance of the New Zealand economy. Although the improved ability to move goods and people across the world has generated substantial benefits for New Zealand, persistent differences remain relative to other countries. It still takes longer and is more difficult for New Zealand firms to get to market than for many of the firms that they compete with.

Given that supply chain links are an increasingly important driver of the competitive position of firms, actions to strengthen New Zealand's supply chain links are likely to have substantial benefits in terms of helping New Zealand firms expand into global markets.

Previous New Zealand Institute reports have examined a range of actions to strengthen New Zealand's international economic engagement, including more supportive domestic policy settings, such as savings policy and tax reform, and a more aggressive, focused external strategy in terms of investing in key relationships in the Asia Pacific and expanding offshore activities to assist New Zealand firms to break into international markets.

This report focuses on what can be done to strengthen the supply chain links of New Zealand firms to the rest of the world. The report begins by considering the extent to which New Zealand's connectedness to the rest of the world has changed over time, comparing this to other countries, and discussing the implications.

[1] *The five previous New Zealand Institute reports in this series are available on the Institute's web-site at www.nzinstitute.org*

The report then identifies three actions that are designed to substantially enhance New Zealand's ability to connect to the rest of the world. First, protecting and strengthening New Zealand's international air and shipping links. Second, placing a greater emphasis on business models in which New Zealand firms develop global production chains managed from New Zealand, in order to reduce their reliance on transporting goods from New Zealand by air and sea. Third, developing virtual supply chains to enable New Zealand firms to participate in the 'weightless economy' and develop strengths that can be transported electronically to international markets using communications technology.

2 IS DISTANCE DEAD?

World trade has grown explosively over the past few decades, as described in the Institute's previous reports (Skilling & Boven (2005b)). One of the reasons for this growth has been improvements in the price and quality of international transport combined with substantial advances in communications technology. This has made it easier for more firms to participate in the global economy and has encouraged new types of economic activity.

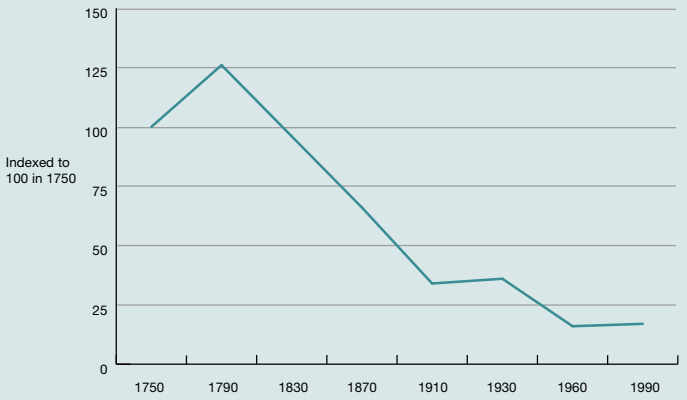
This section describes the reduction in international transport costs over time and considers how this has affected the ability of New Zealand firms to access offshore markets.

Figures 1 and 2 describe the substantial decline in the costs of international air and shipping. Shipping costs have reduced markedly over the past couple of centuries, and the costs of air transport have declined very sharply over the past few decades. But these trends are not as straightforward as are often believed, particularly over the recent past.

In terms of shipping costs, the most significant declines occurred in the 19th century. However, over the past 50 years or so, the decline in shipping costs has flattened off. Indeed, shipping costs seem to have increased slightly over the past decade. There have of course been improvements in the shipping industry, such as the introduction of containerised shipping, which significantly lifted productivity. And larger ships are now servicing ports. But in terms of the average speed and cost of international cargo shipping, there has been little change over the past few decades. The revolution in the cost and speed of shipping occurred some time ago.

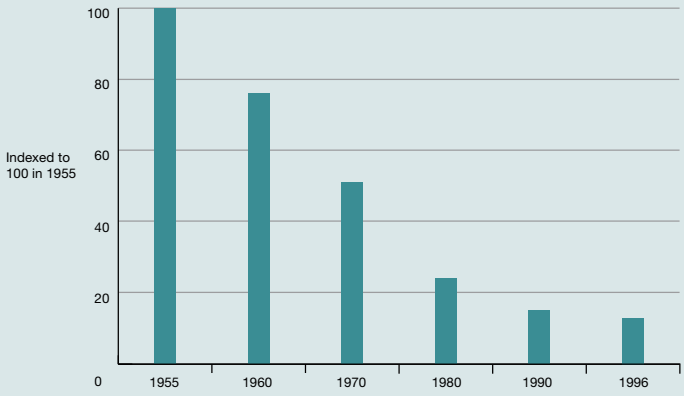
There have been more significant reductions in the costs of air transport over the past few decades, given the

FIGURE 1: OCEAN FREIGHT COST INDEX, 1750-1990



Source: Crafts and Venables (2001).

FIGURE 2: AIR TRANSPORT COST INDEX, 1955-1996



Note: Based on real revenue per ton-km.
Source: OECD; Hummels (1999).

more recent introduction of jet aircraft. Again, however, the pace of the decline in the costs of air traffic has flattened off over the past decade and there has been little reduction in the cost of air cargo.[2] Although air travel is much cheaper and faster than was the case 50 years ago, many of these benefits had been obtained by 1990. And, as with shipping, there have not been significant improvements in the speed of air travel – it still takes 24 hours to fly from Auckland to London, for example.

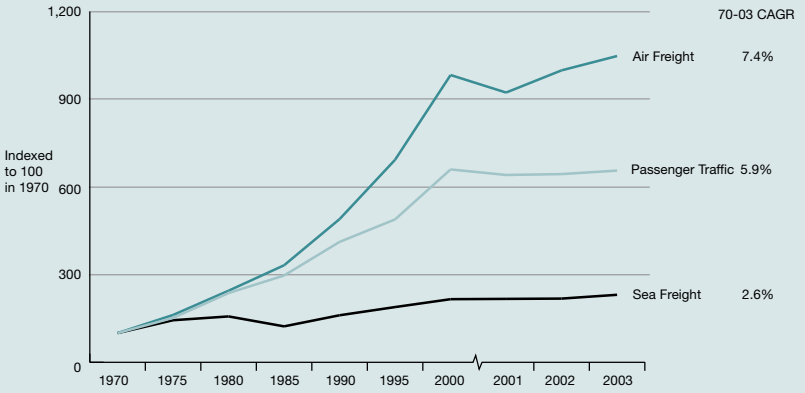
In sum, the costs of both air and shipping have gone sideways over the recent past compared to the steep declines observed previously. Although there have been ongoing improvements in the depth of the links and the extent of servicing, costs have not continued to fall. Going forward, transport costs are not projected to reduce significantly, and it may be that costs will increase with risk around oil prices, carbon taxes, and the costs associated with increased security and increasing congestion at major international transport hubs.

The relative decline in the costs of air freight relative to sea freight has been a key factor driving the rapid growth in air traffic over the past 30 years or so. As Figure 3 shows, the growth in air cargo volumes has been very significant (and the growth by value is even more significant). FedEx note that 35-40% of merchandise trade is now exported by air, despite accounting for only about 2% by volume. And for some countries, the proportion carried by air is significantly higher; for example, about half of US exports to countries other than Canada and Mexico are transported by air (Hummels (2001)).

Combined with technological progress, advances in transport, particularly air transport, has enabled

[2] *The rise of budget airlines over the past several years has had a limited effect on air cargo costs.*

FIGURE 3: GROWTH OF AIR FREIGHT, SEA FREIGHT, AND PASSENGER TRAFFIC



Note: Passenger traffic is measured in billions of passenger-km; sea freight in billions of ton-miles; air freight in billions of ton-km. CAGR is Compound Annual Growth Rate.

Source: Hofstra University; UNCTAD.

new types of economic activity to arise. In particular, companies have developed new business models in which the production chain is fragmented across geography (Economist (2006), Feenstra (1998)). These global production chains are heavily dependent on air transport, rather than on shipping. Air links allow for reliable and timely delivery and mean that firms can run a just-in-time production process. This type of economic activity has been a major driver of world trade growth over the past few decades.

These developments have been interpreted by some as meaning that distance no longer matters much, with the implication that New Zealand's physical location should not be an ongoing source of disadvantage. However, the evidence shows that physical distance continues to have a significant effect on the extent of trade and investment. Economic activity continues to show a tendency to co-locate, despite the improvements in communications and transport technology. And the average distance of trade has reduced over the past few decades, with an increase in trade between neighbours as opposed to distant countries. The world is not as flat as is sometimes claimed.[3]

There are many reasons for this perhaps counter-intuitive finding (Venables (2006)). But one significant reason, relevant to this discussion, is that speed to market has become increasingly important. Issues of flexibility and timeliness of supply have become much more significant. The widespread adoption of just-in-time production methods, lean inventory models, as well as increasing pressure to satisfy rapidly changing demand

[3] *A sample of studies containing evidence on this point includes Venables (2006), Redding, Overman, & Venables (2003), Redding & Schott (2003), and Carrere & Schiff (2004).*

Fragmenting the production chain

Chip producer AMD undertakes R&D in Silicon Valley, bases its production in super-clean facilities in Texas, Germany, and Japan, and locates its final processing and testing in lower cost locations like Thailand, Malaysia, and China.

Dell has production facilities in the US, Ireland, Malaysia, China, and Brazil, and ships its computers to a worldwide market. Each production facility is supported by a network of suppliers and contract manufacturers that is spread across many countries. Every day, Dell fills the equivalent of three Boeing 747 aircraft out of Asia with computers.

Source: Company websites; publicly available information.

conditions or consumer preferences, creates an incentive for flexibility of supply and frequent, small-batch delivery (Evans & Harrigan (2005)). In the context of production chains, the deliveries may also need to be synchronised with other suppliers.

Together, this means that proximity to the market, and co-location with other suppliers, may be more important in determining the location choice of firms than the costs of production e.g. access to low-cost labour (Harrigan & Venables (2005)).[4] Although direct transport costs have reduced, responsiveness and speed to market are new issues that need to be factored into location decisions. This suggests that firms operating in distant markets may not be as competitive in activities in which timeliness is a key quality dimension.

The increasing importance of speed to market for many types of goods and services is also a major reason that air cargo is growing much more rapidly than shipping. Firms are willing to pay a substantial premium to transport goods by air in order to get goods to market quickly. David Hummels (2001b), for example, estimates that the premium firms are prepared to pay indicates that each day saved in shipping time is worth 0.8 percent of the value of the good. As production chains have become more fragmented, relative differences in transport costs can have an amplified effect on firm competitiveness because there are more shipments during a production process (Radelet & Sachs (1998)).

In terms of the implications of these trends for New Zealand, McCann (2003) notes that at the same time as transport costs and technology have improved, thereby strengthening New Zealand's competitive position, the opportunity cost of time and the

[4] *International research suggests that improved market access is a more significant driver of foreign investment for global firms than reduced costs (McKinsey Global Institute (2003)).*

complexity of logistical operations have increased markedly. The shipment of goods increasingly needs to be characterised by "speed, reliability, and timeliness". Speed of delivery and flexibility are becoming as important as the direct costs of production. This places many New Zealand firms at a competitive disadvantage relative to firms that are closer to market.

Inefficient supply chains will place even the most innovative, most productive New Zealand firms at a competitive disadvantage. If a firm cannot get its goods and services to international markets in a timely and efficient manner relative to its competitors, it will be difficult for that firm to compete successfully.

Because supply chains are becoming a lot more significant as a driver of firm competitiveness, company location choices are influenced by access to high quality international transport infrastructure. Indeed, access to international transport infrastructure that supports supply chains is an important driver of the FDI decision by firms (Boston Consulting Group (2001)). One of the reasons that companies are reluctant to locate in New Zealand is the difficulties that they would then face in terms of access to international markets.

Accordingly, the provision of quality international links helps to attract and retain companies, people, and capital. Access to international markets is an important part of the competitive positioning of a country.

A large number of academic studies show that good international air and shipping links translate into a significant national economic advantage (Limao & Venables (2001), Smyth & Pearce (2006)). As a result, some countries are making significant investment in transport infrastructure in order to become hubs for international economic activity.

It is certainly the case that New Zealand is better off for being able to connect more readily to the rest of the world through better air and shipping links, as well as through much enhanced communications networks. But this is not the same as meaning that distance is dead, or that New Zealand is automatically on the same playing field as every other country. Costs of air and sea freight and speed to market have not shown rapid improvements over the recent past, and there is a more pronounced advantage to proximity for some types of economic activity.

Indeed, New Zealand's relatively low levels of international economic engagement suggest that there is an ongoing disadvantage. Countries that are geographically well-positioned on major shipping lanes, or are in large markets that support dense air links, continue to experience an advantage.

The next section examines how New Zealand is positioned in terms of its international air and shipping links. How efficiently can New Zealand firms access international markets compared to their competitors?

3 NEW ZEALAND'S CONNECTIONS TO THE WORLD

New Zealand's international trade has long been dependent on shipping. 84% by value of New Zealand's merchandise trade is currently conducted by shipping, with the remaining 16% transported by air. The shares of New Zealand's merchandise trade carried by air and sea freight has remained roughly constant over the past decade.

New Zealand's exports of services are much more reliant on air links. Both tourism and export education, for example, which together account for about 80% of services exports are heavily reliant on air travel, as they involve the international movement of people.

New Zealand's heavy reliance on shipping exports of goods is also distinctive compared to other countries. Whereas 16% of New Zealand's merchandise trade is conducted by air, the international standard is 35-40%.[5] The share of merchandise trade transported by air is growing, with continued rapid growth in air cargo expected over the coming years.

New Zealand's emphasis on international shipping is in large measure due to the composition of New Zealand's exports. Most of New Zealand's exports are primary goods, which tend to be heavy, bulky, relatively low value per tonne, and not very time sensitive. Air freight is not an option for this type of product because of its significantly greater expense. To give a sense of the price differential, Fonterra estimate that the cost of sending a metric tonne to the US is $4,240 by air and $184 by sea, and to send a metric tonne to Germany costs $4,610 by air and $151 by sea.

These are very substantial differences. The goods being exported need to have a high value to weight ratio – or there needs to be a substantial premium in terms of speed to market – before it becomes economic to use air freight. Indeed, the average value per tonne of New Zealand's exports of goods differs substantially between air and shipping; the average value is $1,200 per tonne for shipping compared to an average of $48,400 per tonne for air freight.

Table 1 describes the top 10 exports of goods from New Zealand and the proportions that are exported by air and by sea. New Zealand's major exports, like dairy, meat, and forestry, are carried almost exclusively by sea. Perishable goods like fish and flowers as well as goods like apparel are much more likely to be exported by air.

New Zealand's export composition has remained remarkably constant over the past few decades (Skilling & Boven (2005b)), which explains why the proportion of New Zealand's merchandise trade transported by air has not grown in the way experienced in many other developed countries.

[5] *This air estimate is likely to be biased down relative to the New Zealand estimate because of the availablitiy of international road and rail options in many coutries.*

TABLE 1: MODE OF TRANSPORT FOR NEW ZEALAND'S GOODS EXPORTS, 2005

Top 10 goods exports, 2005	Value $b	Transported by:	
		Sea	Air
Dairy	5.2	100%	-
Meat	4.7	98%	2%
Boilers and machinery	2.4	48%	52%
Wood	1.9	100%	-
Fruit	1.2	96%	4%
Fish	1.1	81%	19%
Aluminium	1.1	98%	2%
Electrical machinery	1.0	33%	67%
Starches	0.8	97%	3%
Wool	0.8	97%	3%
Total goods exports	31.2	84%	16%
Average value per tonne ($)		1,200	48,400

Source: Statistics New Zealand.

Because the biggest reductions in terms of transport costs over the past few decades have come in terms of air transport rather than shipping, New Zealand has not benefited to nearly the same extent from this progress as many other countries. The remainder of this section examines New Zealand's international shipping and air links in more detail. How well positioned are New Zealand firms relative to firms in other countries in terms of their ability to connect to the global economy?

Shipping links

New Zealand is physically remote and is not on major shipping lanes. As a consequence, it takes a long time to get to market. To give some examples of shipping times, it takes 12-15 days to get from Auckland to Singapore, 15-20 days to get to the West Coast of the US, and 35-40 days to get to Europe. This is a major improvement on a century ago, when it took a few months for a ship to reach the UK from New Zealand. However, 40 days in transit is a long time, and is substantially longer than for many of the firms that New Zealand firms are competing with – it takes 15-20 days to reach Europe from Hong Kong.

There are no indications that speed to market from New Zealand is likely to increase. Container ships are getting larger rather than faster. If anything, the trend towards consolidation in the shipping industry may mean that larger container ships will visit New Zealand ports on a slightly less frequent basis. Reduced frequency of servicing has the potential to increase the effective time that it takes to get goods to market from New Zealand.

It also appears that it costs more to ship goods from New Zealand to offshore markets than from more proximate locations (Hummels (1999)). Mainfreight, for example, estimate that it costs about $215 per metric tonne

to ship goods from Auckland to the West Coast of the US, compared to about $105 per metric tonne from Hong Kong, as well as taking 4-8 days longer. It is these relative cost and speed differences between countries that matter for the competitive position of New Zealand firms.

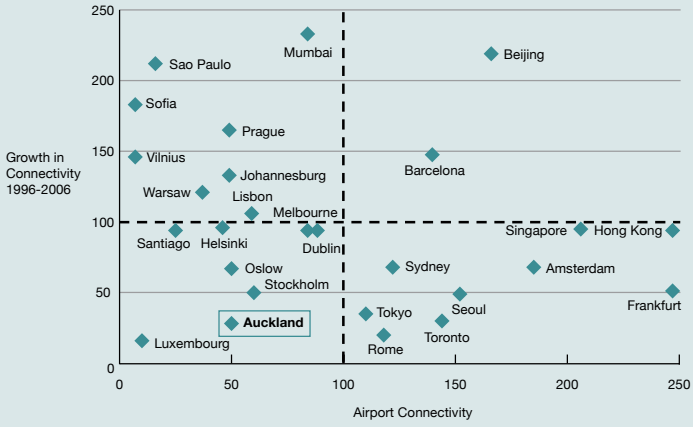
Air links

New Zealand does not benchmark well against other countries in terms of its international air connectedness. This can be seen both in terms of the absolute number of international links and also in terms of more sophisticated measures of international connectedness, as shown in Figure 4.[6] On this measure, New Zealand's major airport, Auckland International Airport, is well below the median in terms of both international connectedness and the growth in connectedness.

New Zealand's low ranking reflects the relative absence of direct connections from New Zealand to international destinations. There is a heavy emphasis on routing through international hubs, such as Sydney or Singapore, rather than flying directly to destinations from New Zealand. This relative lack of direct connections is in large measure a function of the economics of servicing the small New Zealand market.

The composition of New Zealand's international air links is also distinctive. New Zealand's air cargo capacity is driven by passenger traffic, which is dominated by the tourism industry as described in Figure 5. 50% of overseas visitors arrive on vacation with a further 29% visiting friends or relatives. Business travel accounts for just 11% of inbound passenger traffic. Air carriers to New Zealand make their money off passengers not

FIGURE 4: AIR CONNECTIVITY AND GROWTH BY CITY, 1996-2006



Source: International Air Transport Association.

[6] *The IATA connectivity measure is based on the number and capacity of direct flights from that city as well as the relative connectivity of the destinations. Connectivity can increase through additional flights or larger planes on existing routes, by adding new routes, or when the destination cities improve their connectivity.*

cargo. Without the tourism industry, New Zealand's servicing in terms of air cargo would be substantially reduced.

There are only two dedicated air cargo carriers that service New Zealand. Internationally, major cities are serviced by a greater number of dedicated air cargo carriers, which often fly different routes than passenger travel.

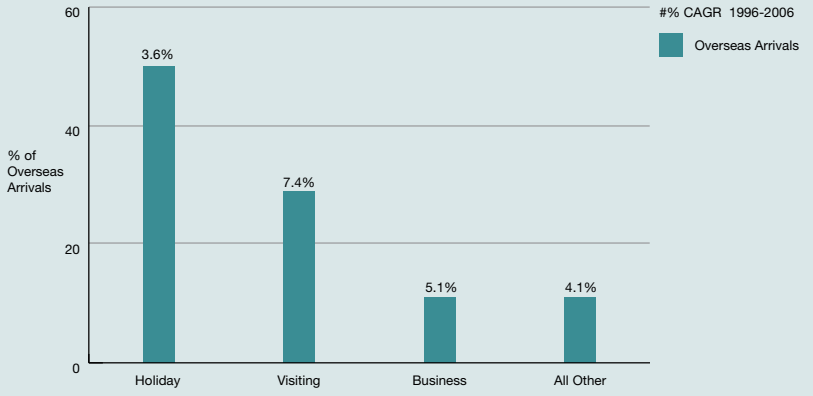
The other distinctive aspect of New Zealand's international air links is the time that it takes to get to market. Although the differences between New Zealand and other countries is now measured in terms of hours rather than days, as is the case for shipping, it does take longer to fly to major markets: it takes 10 hours to fly to Singapore from Auckland, 12 hours to Los Angeles, and 24 hours to London. And given the relative absence of direct flights, and lower frequency of flights, the effective time difference may be larger.

One factor that acts in New Zealand's favour is its relative proximity to the Asian region, which will be a major driver of global economic growth over the coming decades. This reduces the distance that New Zealand's exports need to travel physically relative to exports from other countries. But even so, Asian markets are still some distance from New Zealand.

IMPLICATIONS FOR NEW ZEALAND

It is easy to say that distance is dead, but the reality is a bit more complex. In terms of New Zealand's international air and shipping links, New Zealand's ability to connect to the global economy does not compare well to many other countries. In addition, New Zealand has not benefited as much as other countries from improvements in transport technology, because of its reliance on shipping rather than on air transport. This

FIGURE 5: COMPOSITION OF PASSENGER INFLOWS, 2006



Note: Visitors of 12 months or less. All Other includes educational, medical, and stopover. Years end in September. CAGR is Compound Annual Growth Rate.

Source: Statistics New Zealand.

means, for example, that New Zealand is not well placed to participate in global production chains that are linked by dense air connections.

Perhaps unsurprisingly because of New Zealand's size and location, New Zealand is not as well serviced as countries in more proximate locations. New Zealand's international links are not bad, but are what might be expected given its geographic situation.

Although New Zealand is better linked to the world than was the case a few decades ago, New Zealand firms face ongoing costs associated with New Zealand's physical location. It remains more expensive and time consuming to physically transport goods from New Zealand than from more proximate countries. This reduces the efficiency with which New Zealand firms go to market. Firms in many other countries retain a competitive advantage over New Zealand firms in terms of their ability to access global supply chains. These challenges are not likely to reduce in size over time.

There is a sense in which firms are increasingly competing on the basis of their supply chains (Economist (2006)). The ability to structure the production process efficiently and get goods to market quickly is vital to the success of firms. Acting to improve New Zealand's supply chain links will strengthen the competitive position of New Zealand firms. And as a consequence, this will strengthen New Zealand's overall ability to attract and retain people, capital, and companies. New Zealand will become a more attractive place to locate economic activity, which will contribute positively to New Zealand's overall economic performance.

So the first implication of this analysis is that improving the quality of New Zealand's international supply chain links is an important priority. There is a need to strengthen New Zealand's international air and shipping links in order to reduce the remaining competitive disadvantage faced by New Zealand firms that is due to New Zealand's physical location.

The above analysis also has broader implications in terms of the location of New Zealand's comparative advantage. New Zealand has long been argued to have a comparative advantage in aspects of the primary sector because of its natural resource endowment.

However, the location of a country's comparative advantage depends not just on the relative costs of production but also on the relative costs of transporting goods and services to market (Deardorff (2004), Harrigan (2005)). In remote countries like New Zealand, transport costs may be a very significant driver of comparative advantage relative to production costs.

Indeed, the development of New Zealand's global comparative advantage in the primary sector has as much to do with innovations in transport technology, like the

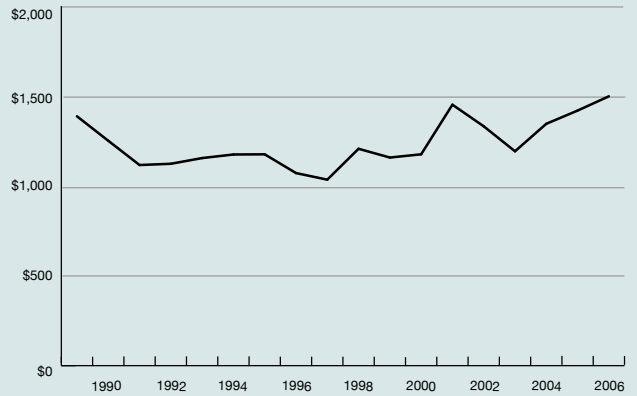
introduction of refrigerated shipping, as with New Zealand's natural resource endowment. Similarly, the rapid developments in transport technology, particularly air freight, and in communications technology, are likely to mean that the location of New Zealand's comparative advantage is shifting towards the production of high value, low weight goods and services, which are relatively insensitive to distance.

It seems unlikely that New Zealand will prosper by specialising in producing and transporting relatively heavy, low value goods across long distances to market. In addition to New Zealand's strength in the primary sector, New Zealand should also be looking to support the development of strengths in relatively distance-insensitive goods and services.

Indeed, there is some emerging evidence that, with the introduction of air cargo, "countries that are far from their major export markets will have a comparative advantage in lightweight goods". Harrigan (2005), for example, finds that distant countries trade light weight goods with each other because these countries benefit from the relative changes in the costs of air and sea freight.

However, New Zealand's export base is currently characterised by being relatively heavy and low value compared to the exports of many other developed countries. The average value of each tonne of goods exported from New Zealand has increased only slightly between 1989 and 2006, rising by less than 10% over this period from about $1,400 to $1,500, at an annual growth rate of 0.4%. In Iceland, another small, remote island state, the average value of each tonne of their exports of goods has increased by about 60% over the past 15 years and is currently at about NZ$3,200 per tonne, over twice that of New Zealand.

FIGURE 6: AVERAGE VALUE OF EACH TONNE EXPORTED FROM NEW ZEALAND, 1989-2006



Note: Exports of goods only.
Source: Statistics New Zealand.

Similarly, the value of each tonne of goods exported from the US in 2001 had a value of about NZ$3,200. This value per tonne of exports has been increasing consistently over the past few decades. Alan Greenspan recently noted that the growth in the value of US trade has been much greater than growth in the physical weight of trade. He calculates that "the price adjusted value of our trade per pound has risen by approximately 4 percent per year on average" over the past few decades.

If New Zealand's comparative advantage is shifting towards higher value, lower weight goods, it is important that the way in which New Zealand firms think about supply chains is updated accordingly. What sort of approach to New Zealand's supply chains is required to support the transition of New Zealand firms towards goods and services that are relatively distance-insensitive? In addition to making New Zealand's existing supply chains more efficient, what sort of new business models and new supply chain infrastructure is required to support this change?

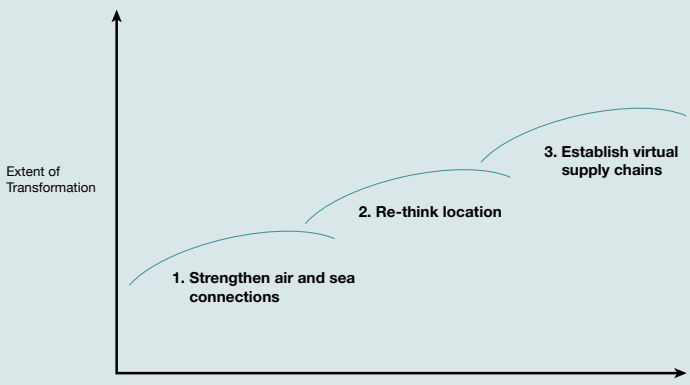
THREE PROPOSED RESPONSES

Given the importance of New Zealand's supply chains for the competitive positions of New Zealand firms, serious thought needs to be given to how New Zealand firms can improve the ways in which they transport goods and services to often distant international markets. The next three sections identify and describe three responses.

Section 4 outlines the first step, which is to act to protect and strengthen New Zealand's international air and shipping links.

However, although it is important to strengthen New Zealand's existing links, the aim should be to do more

FIGURE 7: THREE PROPOSED RESPONSES



than simply reduce the scale of the existing disadvantage, but to identify ways to respond to the changing nature of New Zealand's comparative advantage. There is a need to think more creatively to position New Zealand firms for international success.

Section 5 describes the supply chain benefits that can be obtained when New Zealand firms locate production facilities close to international markets or international transport hubs. To the extent that New Zealand firms adopt business models in which they locate their production and distribution activities offshore, they will be less exposed to the ongoing competitive disadvantage imposed by New Zealand's international air and shipping links. Rather, New Zealand firms will be able to access supply chain infrastructure that exists in other countries.

Section 6 then describes the importance of developing New Zealand's virtual supply chain infrastructure in order to support the development of weightless strengths in the New Zealand economy.

Weightless economic activity, such as software design, the creative industries, and financial services, can be transported to international markets through communications technology. This type of activity is not subject to traditional disadvantages of physical remoteness, and so should be well suited to the New Zealand situation.

These three responses move from protecting and securing the base, through to some more transformational suggestions that have the potential to generate a substantial improvement in New Zealand's links to the rest of the world.

4 STRENGTHENING NEW ZEALAND'S AIR & SHIPPING CONNECTIONS

This section identifies a range of actions that can be taken to strengthen New Zealand's international shipping and air links. It also discusses the likely impact that these actions will have in terms of improving the competitive position of New Zealand firms.

SHIPPING LINKS

The efficiency of New Zealand's international shipping links matter because 84% of New Zealand's merchandise trade by value is carried by sea. Actions that can be taken to improve the efficiency of New Zealand's shipping links are therefore likely to have a positive impact on the competitive position of a large part of New Zealand's export base.

New Zealand is served by several of the world's major shipping lines, with Maersk currently carrying about 40% of the New Zealand merchandise trade that is carried by sea. The issues to examine are what can be done to strengthen the incentives for regular, high-quality servicing by these international shipping lines and to ensure that the process of getting goods to and through New Zealand ports is highly efficient.

New Zealand ports have been estimated to be amongst the most efficient and lowest cost of the international ports surveyed, including Australian ports (Charles River Associates (2002)). This is consistent with what appears to be the conventional wisdom in the logistics industry.

The challenge now relates to the capital investments that need to be made by ports. Shipping industry consolidation and increasing vessel size is likely to place New Zealand ports under increased pressure to make substantial capital investments. Worldwide there is a trend towards increased ship size in an attempt to consolidate volumes and drive down costs. And as larger ships service the major international routes, the existing ships on these routes will begin to travel to New Zealand. Ports of Auckland note that the ships serving New Zealand are getting larger. Five years ago, the maximum ship size being served in New Zealand was 2,900 TEU, whereas New Zealand ports are now serving ships up to 4,100 TEU.[7]

Over the next several years, increased investment will need to be made by ports in order to be able to service the next generation of ships that will serve New Zealand, which are likely to carry 5,000-6,000 TEU. To service ships of this size, New Zealand ports may need to spend around $50-100 million each.

McDouall Stuart (2006) argue that "the expected growth of New Zealand cargo flows does not justify the collective level of investment being proposed". Indeed, it is commonly argued that it does not make commercial sense for many New Zealand ports to make the significant investments required to accommodate

[7] *A TEU is a Twenty-foot Equivalent Unit, the standard container size.*

the next generation of ships. New Zealand has 12 major ports, many of which are small and do not cover their cost of capital (McDouall Stuart (2006)).

One of the reasons for the low returns is existing over-investment in capital equipment, as ports, largely owned by local governments, have competed to attract shipping lines by making significant investments. The motivation was that if they did not invest, they would lose business from the major shipping lines. But an arms race in terms of investment may not optimise the efficiency of New Zealand's supply chains. Only a limited number of New Zealand ports should be making these substantial investments.

Market forces are beginning to move in this space, with mergers being discussed between the Ports of Auckland and Tauranga as well as between the ports at Lyttelton and Otago. One of the benefits claimed for these mergers is a more coordinated approach to investment decision-making, which should lead to greater efficiency and benefits for the users of the ports. The downside may be a potential loss of competition in the ports sector, and an ability for ports to exercise market power, thereby reducing the efficiency of New Zealand's supply chains.

The importance of New Zealand's supply chains for the competitive position of New Zealand firms means that this debate is of significant strategic economic importance. To the extent that the government has to take a view on this process, the key objective in balancing these competing pressures is to strengthen the ability of New Zealand firms to efficiently connect to the world.

It is vitally important that New Zealand ports make investments that allow them to service current and future generations of container ships in an efficient manner, so that international shipping lines are not deterred from servicing New Zealand. The ability of New Zealand firms to connect to the global economy would be

compromised if New Zealand becomes a feeder route off Australia.

The other reason that the government has a strategic interest in the way in which these investment decisions are made is that the government has a responsibility for investments in domestic road and rail infrastructure on which goods are transported to the ports. To enhance the efficiency of New Zealand's supply chains, the government needs to take an active role in ensuring that its investments in domestic road and rail links are aligned with the investment decisions that are taken at the ports. There needs to be some overall coordination of this decision-making process.

But there is a limit to what these proposed actions will achieve. Efforts should of course be made to ensure that the ports sector is as efficient as possible, and the proposed actions will likely achieve some efficiency gains within New Zealand. But little can be done to speed up delivery by sea to distant markets or to create an incentive for significantly increased levels of servicing by international shipping lines, which are the key drivers of the quality of New Zealand's supply chains. This simply reflects New Zealand's physical location and the economics of a small market with relatively limited volumes to ship.

AIR LINKS

International air links are becoming more important for New Zealand given the increased importance of speed to market for a number of high value areas of economic activity. Stronger international air links are an important element in assisting New Zealand firms to develop a presence in such areas. Actions to maintain and develop the extent of New Zealand's air servicing links in terms of passenger traffic and air cargo should therefore have a substantial effect on the New Zealand economy.

New Zealand is doing many of the right things in terms of making itself as attractive as possible to international air carriers. New Zealand's liberal approach to the Open Skies agreement is very useful, ensuring that any airline that wishes to fly to New Zealand can do so. In addition, New Zealand airports are making ongoing investments in infrastructure. Auckland Airport, for example, has invested to ensure that its runways are capable of receiving the Airbus A380. This positions New Zealand to continue to be a destination for the next generation of aircraft.

In addition to these basic steps, two other types of actions are likely to strengthen New Zealand's international air links.

Encouraging tourism

Tourism is a major export industry in its own right. In addition, the tourism industry also generates broader economic benefits as it supports air links that bring air cargo capacity to New Zealand as well as supporting business travel. As noted above, most

of New Zealand's air cargo capacity exists on passenger aircraft and the great majority of the passenger travel is due to tourism. Growth in tourism has led to growth in the number of airlines and aircraft servicing New Zealand, and thus in the amount of air cargo capacity.

If tourism slows, it becomes more difficult to sustain routes that support business traffic and air cargo, and New Zealand's international air links will be degraded making it more difficult for New Zealand firms to connect by air to international markets. Indeed, tourism growth into New Zealand is projected to slow over the coming years, after a period of strong tourism growth, which may have a negative effect on the level of air servicing that New Zealand receives.

This creates a case for continuing to promote tourism into New Zealand to ensure ongoing strong inward tourism flows. Such promotion activity is undertaken at the moment, with about $80 million a year being spent on promoting international tourism by the government and the private sector. But these additional strategic benefits of inward tourism flows strengthen the case for such investments.

Air New Zealand ownership

There is persuasive evidence that national airlines matter for economic well-being, particularly for small or remote countries (Love et al. (2003)). National airlines tend to provide more direct flights to their home market, which benefits tourism, business travel, and air freight, and are also much more likely to invest in promoting their home country, which contributes to developing a national brand as well as tourism flows. These arguments have particular relevance for small, remote countries, such as New Zealand, where there is less incentive for other airlines to make such investments.

It is New Zealand-based airlines that are most likely to provide the basis for a high level of international servicing of New Zealand. Air New Zealand is more prepared to invest in new routes, and persist with existing routes for longer, because it is their home market. Other airlines are more likely to reduce servicing to New Zealand if the routes are losing money, rather than persevere because they are flying to a home market. Indeed, a number of airlines, such as United, have stopped servicing New Zealand over the past several years. New Zealand is not the top of mind market for them.

If Air New Zealand ceased to operate, the clearly profitable international routes would probably be serviced by other carriers, such as the US routes, but some of the other routes would likely be dropped. In terms of establishing new routes, no foreign airline is likely to have commenced the Auckland to Shanghai service and no other airline would be looking to grow their international service out of New Zealand.

Air New Zealand is also one of the more significant investors in national

advertising and tourism promotion. The media coverage and general profile that was created in both China and New Zealand in the context of the recent launch of the Auckland to Shanghai route was of significant value.

In sum, having a national carrier that is primarily focused on serving New Zealand is important in terms of protecting New Zealand's international connectedness.

Issues of the future ownership of Air New Zealand should be approached from this perspective. As a consequence of the recapitalisation process in 2001, the government owns about 80% of Air New Zealand. The government now faces some understandable pressure to sell-down all or part of its Air New Zealand shareholding. The arguments made in this regard are not unreasonable given the high risk profile of the airline industry, the alternative uses for the government's capital tied up in the ownership stake, and the benefits that can be expected from subjecting Air New Zealand to regular capital market disciplines.

But in making the decision about the ongoing ownership of Air New Zealand, it is vitally important to consider the strategic benefits associated with strengthening New Zealand's international air links. A viable national carrier matters significantly in terms of the quality of New Zealand's air links with the rest of the world. Whatever decisions are taken should have these broader strategic issues in mind rather than treating the decision largely as a financial or philosophical issue. This does not necessarily mean retaining the status quo. There are a variety of potential options that could be considered in terms of ownership, strategic alliances, and the like. But whichever approach is chosen, the overriding priority is having a viable national airline that is committed to servicing New Zealand. Considerable care should be taken in any review of the government's ownership stake in Air New Zealand to ensure that New Zealand remains well served.

SUMMARY

Acting to enhance the efficiency of New Zealand's international air and shipping links should be a key priority, and should be at the centre of decisions around issues such as investments by the ports, Air New Zealand ownership, and tourism promotion. These policy issues need to be considered in this broader strategic economic context.

However, none of the actions proposed above are game changing in terms of enhancing the ability of New Zealand firms to connect to the global economy. Strengthening New Zealand's international air and shipping links is important, but it is unlikely that these actions will transform New Zealand's international economic engagement. The actions outlined above are better seen in terms of protecting the current level of servicing, and lowering the risk of diminished servicing, rather than growing New Zealand's international connections substantially.

The current level of servicing in many respects reflects the economics of servicing the small New Zealand market, 'the last bus stop on the planet'. No matter what actions are taken to strengthen New Zealand's air and shipping links, New Zealand's size and location mean that New Zealand will likely remain subject to some ongoing disadvantage in terms of cost and speed to market. The reality is that New Zealand remains physically distant, and transporting goods, services, and people is relatively time-consuming and costly from New Zealand relative to other countries.

In addition to the reasonably limited upside from strengthening New Zealand's physical connections, there are also some risks that may compromise New Zealand's future ability to access international markets. Obviously there is a risk that fuel prices will increase or that terrorism will disrupt international travel. And to the extent that consumer preferences in terms of food miles or local tourism change as a response to concerns about climate change, it may mean that New Zealand's current model of shipping goods and people long distances is placed at risk.

Given that the efficiency of supply chains is increasingly important for competitive advantage, New Zealand will need to think creatively about connecting to international markets from a small, remote island base. Otherwise competing globally will be an up-hill battle for many New Zealand firms.

The next two sections identify and describe two responses to the constraints associated with New Zealand's physical supply chain links. Section 5 considers the extent to which New Zealand firms can re-think the physical location of their activities. And Section 6 examines the potential to develop virtual supply chains to allow New Zealand to export weightless strengths that are much less exposed to New Zealand's physical supply chain links.

5 RE-THINKING LOCATION

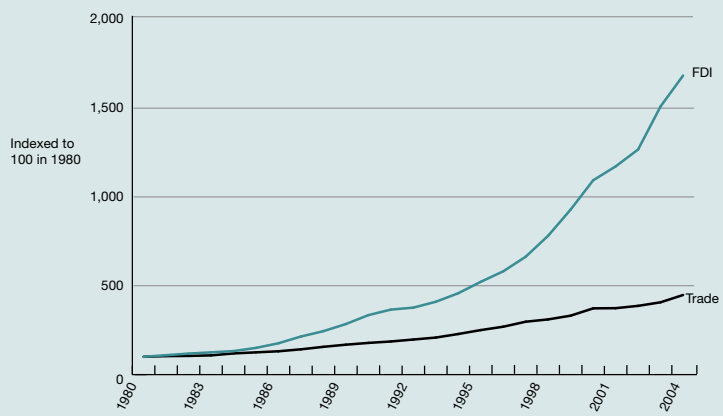
One way in which New Zealand firms can reduce the competitive disadvantage associated with New Zealand's international supply chain links is to re-think the geographic location of their activities. To the extent that New Zealand firms can locate aspects of their production and distribution activities closer to international markets or closer to international transport infrastructure, New Zealand firms will be less reliant on New Zealand's international supply chain links.

New Zealand firms can achieve this by investing directly in production and distribution capacity in offshore markets, or by contracting out aspects of the production process to an external party in another country.

New Zealand firms have used both of these approaches. Fisher & Paykel Appliances, for example, has invested in production facilities in the US that are much closer to the end consumer, which reduces transport costs and increases speed and flexibility. Firms such as Icebreaker and Pumpkin Patch have contracted out their production to firms in China, and are able to ship directly to end markets from China. These decisions mean that New Zealand firms will be using similar or identical supply chain infrastructure as that of their competitors, and so are on a level playing field in this regard.

Worldwide, firms are exploiting developments in transport and communications technology and organising their operations in a global manner. New, genuinely global, companies are emerging that integrate production and value delivery on a worldwide basis (Palmisano (2006)). As an indication of the power of this force, it is instructive that foreign direct investment (FDI) growth has been consistently higher than world trade growth, as described in Figure 8. Since 1980, outward FDI has grown at an annual rate of 13% compared to a

FIGURE 8: GROWTH IN GLOBAL TRADE AND FOREIGN DIRECT INVESTMENT



Source: World Bank WDI; OECD.

growth rate of 6% in exports of goods and services.

In addition, the growth of cross-border transactions within firms has been a key driver of world trade growth, reflecting a marked shift towards establishing global production chains. Indeed, a large portion of the US trade deficit is driven by US firms importing goods and services from their foreign subsidiaries. McKinsey & Company estimates that "12 low cost countries could account for nearly half of US manufacturing imports" by 2015, which would account for several hundreds of billions of dollars.

The arguments for New Zealand firms to establish a global production presence are particularly powerful given the relative significance to New Zealand of transport costs and the increasing importance of speed to market. And technology is making it increasingly possible to manage a global presence from New Zealand. Microsoft CFO Chris Liddell recently observed that "the opportunity has never been greater to create a mini-multinational based in New Zealand – designed and owned in New Zealand, made in Thailand, assembled in China, sold in the USA – why not?"

This section examines the benefits that this approach will generate for New Zealand, at both a firm level and at a national level. What is the potential for this type of business model to generate significant economic gains for New Zealand?

BENEFITS TO NEW ZEALAND FIRMS

For many New Zealand firms, reducing their reliance on New Zealand's supply chain links will be a source of considerable economic value. It means that New Zealand firms will have production facilities in the same place as the firms that they are competing with, and so will face very similar production and distribution costs and quality as well as the same speed to market. This will level the competitive playing field, and will shift the basis of competition towards lighter-weight areas like branding, design, and innovation in which New Zealand firms are more likely to have competitive advantage.

That these factors matter to firms can be seen in the strong international evidence that firms tend to substitute outward FDI for exports as transport costs increase. That is, if it is costly to transport goods to an offshore market, firms are much more likely to produce in that foreign market rather than export from their home market (Brainard (1997), Helpman (2006)).

In addition to overcoming conventional transport costs, this approach may also assist in dealing with a new generation of transport costs. The increasing public concern about issues of sustainability and climate change may have implications ranging from the imposition of carbon taxes to emerging consumer preferences for local production, as seen in the recent

public debate on food miles. Locating production and distribution facilities offshore, closer to the end consumer, may be a good way for New Zealand firms to manage the financial and presentational issues associated with shipping product from New Zealand to distant markets.

This type of business model also addresses other barriers to the international expansion of New Zealand firms, in addition to making international supply chains more efficient. Locating a production presence offshore, through either direct investment or external contracting, will enable New Zealand firms to access scale economies in production that are unlikely to exist in New Zealand given the small size of the market. And it is also a response to some of the emerging input constraints in the New Zealand market, such as the skills shortage and the tight labour market as well as constraints on land supply in the context of the primary sector.

Offshoring production activity may provide particular benefits for small and medium-sized New Zealand firms, by allowing them to access relatively low cost, high quality, large scale production facilities, and therefore allowing them to rapidly scale up production in a relatively low risk way. More broadly, it enables New Zealand firms to increase their focus on the aspects of the value chain where they have real competitive strength. Interestingly, New Zealand firms that have offshored activity seldom cite lower production costs in offshore markets as the primary motivation for their decision, but rather focus on these broader benefits.

These prospective benefits may not exist for all firms. In some sectors and for some firms, there may be compelling reasons to locate all of the production chain in New Zealand. For example, when the activity is based on a natural resource endowment, where the skills and expertise are available in New Zealand, where there is some

Kiwi multinationals

Fisher & Paykel Appliances, a manufacturer of household appliances with annual revenues in excess of $1 billion, has established several overseas production facilities. In 2005, it invested in new production facilities in Ohio to be closer to its customers. The justification given was that shipping relatively bulky whiteware goods from New Zealand involved paying a lot to "ship good clean New Zealand air" around the world.

Bendon is an intimate apparel company, with annual revenues over $150 million most of which come from overseas markets. The design function is based in New Zealand and its manufacturing is outsourced to China. This gives Bendon access to world-class manufacturing facilities with the latest machinery and equipment. Bendon has three distribution centres: New Zealand, the US, and China, which serves Europe by air.

Pumpkin Patch design and sell children's clothes, with forecast sales of $330 million in 2006. The clothes are designed in New Zealand, manufactured in China, and sold to customers in a growing range of international markets. Pumpkin Patch have recently put systems in place to allow them to distribute the products from the manufacturer in China directly to the end-market.

Icebreaker designs and manufactures apparel using New Zealand merino wool, selling into 1,000 stores in 17 countries. The focus of the company is on design, branding, and marketing, with the manufacturing process contracted out to firms in China that have cutting edge equipment and can produce at scale. The quality of production is the same as for their competitors, and they have access to the same distribution infrastructure.

Glidepath manufactures and supplies airport baggage handling systems into worldwide markets. They manufacture a significant proportion of this product overseas to reduce production costs, as well as to reduce shipping and distribution costs, and to satisfy local purchasing requirements in some markets.

Source: Company interviews; publicly available information.

brand value associated with a New Zealand production process, where air freight is a viable option because of a high value to weight ratio, or where time to market is of much less consequence. In this case, re-thinking location may not be appropriate.

Re-thinking location is not a panacea, nor is it easy. Some firms have not

experienced benefits, and have had difficulties in areas such as quality control and integrating offshore production with the rest of their supply chain.

However, for many New Zealand firms, adopting this 'mini-multinational' model will be a creative response to New Zealand's supply chain constraints. By enabling New Zealand firms to operate on a similar playing field to their international competitors, such business models are likely to significantly increase the competitiveness of New Zealand firms. Indeed, without such innovation, some New Zealand firms may not remain competitive in international markets.

In this approach, the main value generated by New Zealand firms comes from the management and control function, and from activities such as branding and marketing. Placing a heavier emphasis on such knowledge intensive activities is a way of reducing New Zealand's exposure to physical distance and is likely to generate significant economic value.

POTENTIAL

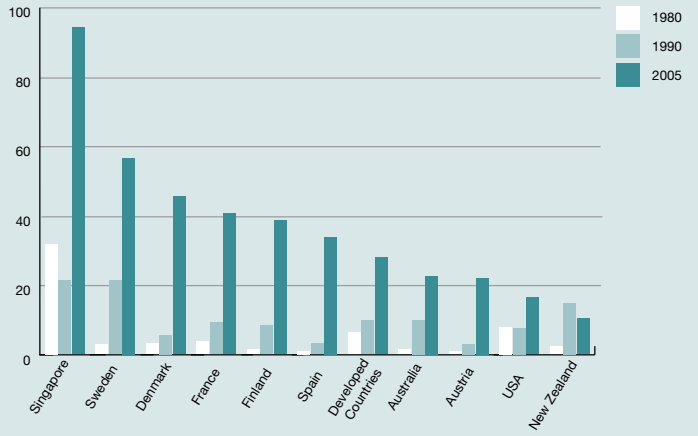
In response to these, and other arguments, a growing number of New Zealand companies are creating value by investing directly offshore or contracting out production to an offshore firm. The extent of this activity appears to be increasing. Anecdotal reports suggest that more medium-sized New Zealand companies are making investments offshore to establish a production presence. This type of activity is not simply the preserve of large, listed firms.

However, most of New Zealand's major foreign investments that have been made are due to large firms such as Fletcher Building and Sky City expanding their activities by purchasing international assets, rather than firms making acquisitions that create an integrated international supply chain. Only a small proportion of New Zealand's outward FDI is due to New Zealand firms relocating aspects of their productive process to improve the efficiency of their international supply chains.

In any case, New Zealand's levels of outward FDI is very low relative to other developed countries and has been declining over the past 15 years in sharp contrast to the global trend (Skilling & Boven (2005b)). Very substantial increases in outward FDI levels can be seen across many developed countries, as firms from these countries have developed a global presence. These trends can be seen clearly in Figure 9.

In addition, a growing number of New Zealand firms have offshored aspects of their production process to firms located in other countries in order to strengthen their supply chain links. There is no official reporting of the extent of this activity, but on the basis of research that we have undertaken, through firm interviews and industry

FIGURE 9: OUTWARD FDI AS A % OF GDP



Source: UNCTAD.

analysis, it appears that the amount of this activity is equivalent to no more than about 5% of New Zealand's current merchandise export base (about $1.6 billion).

This does not mean that New Zealand's exports are 5% lower than they would be if this activity was undertaken in New Zealand because these firms have achieved growth in these operations that would not likely have been possible from a New Zealand base.

In terms of the potential for future growth, a large proportion of the potential substitution activity from New Zealand has likely already occurred. In sectors such as textiles and footwear and parts of the manufacturing sector, a large proportion of the production has already been offshored. There may be more decisions to substitute foreign production for domestic production, but this seems unlikely to involve material amounts of activity.

In other large parts of the export economy, such as the food and beverage sector, the proportion of activity that has been relocated offshore appears to be much lower. But the potential for growth in offshoring in this sector is also lower. Primary sector production cannot be readily relocated because it is based on a natural resource endowment.

The major opportunities ahead lie in the context of enabling international growth by New Zealand firms rather than ongoing substitution activity. Operating in a global context provides a platform for substantial international growth by New Zealand firms by enabling them to scale up their activities in a way that would not have been feasible in a New Zealand context. There are some high-profile examples of such New Zealand firms, such as Pumpkin Patch and Icebreaker, as well as an increasing number of younger, rapidly growing New Zealand firms that are pursuing this approach, such as Phil & Ted's.

Platform for Growth

Phil & Ted's is a young, rapidly growing, New Zealand company that sells children's buggies. They have annual revenues of about $20 million, most of which comes from overseas markets. The company focuses entirely on design and marketing, and contracts its production out to two dedicated suppliers in China. This gives them access to low-cost, flexible manufacturing capacity without requiring in-house expertise.

Furniture Global, a New Zealand outdoor furniture manufacturer, established a joint venture in Vietnam six years ago. It now employs 2,600 people in three factories in Ho Chi Minh City, and exports 200 40-foot containers of furniture a month to markets around the world. According to the owner, "If a New Zealander has a labour-intensive industry, then the sky's the limit".

Source: Company interviews; NZTE's Bright magazine, November/December 2006.

It is this next generation of New Zealand companies that are most likely to adopt these business models in a significant way. Based on the experiences of emerging New Zealand firms there seems to be substantial potential for growth over the coming years. And New Zealand firms have a long way to go to match the level of offshore activity of firms in many other developed countries.

NATIONAL ECONOMIC BENEFITS

Re-thinking location will allow many New Zealand firms to become more competitive and therefore generate a superior profitability performance, by improving the efficiency of their international supply chains. It will also enable New Zealand firms to expand production in a way not likely to be possible in New Zealand given the labour and other input constraints on growth, as well as the generally small scale of production facilities in New Zealand.

Having more profitable, successful New Zealand firms will bring broader economic benefits to New Zealand. There is international evidence to suggest that firms that undertake offshoring activity employ more people domestically, as they become more productive, and also pay higher wages (Grossman & Rossi-Hansberg (2006)). And the international evidence suggests that foreign investment by firms does not come at the expense of domestic investment, but is more likely to be complementary to domestic investment (Desai et al. (2005)).

As New Zealand firms grow, they are also likely to expand in New Zealand with a larger head office presence and a greater range of activities. These economic gains are likely to

be particularly significant in New Zealand given the size of the existing disadvantage imposed by New Zealand's physical location.

The standard concern with respect to firms re-thinking location is that this process involves exporting jobs and economic activity to other countries. However, it seems likely that the potential downside will be much smaller in New Zealand than in other developed countries. As described above, much of the potential production substitution activity by New Zealand firms is likely to have already occurred.

Going forward, this approach is likely to be used as a platform for international growth by New Zealand that would not have been possible using a traditional exporting model. So in most cases, it will not involve transferring existing New Zealand jobs overseas because these are firms that do not currently have a major employment presence and can only grow significantly if they do so overseas.

This is particularly likely to be true given New Zealand's very low unemployment and emerging labour shortages. Indeed, the New Zealand experience of offshoring to date has not had a significantly detrimental effect on the New Zealand labour market. Given that the alternative may be New Zealand firms becoming increasingly uncompetitive in an international context, it does not seem that the downside is likely to be large.

A major way in which New Zealand will benefit from this process is in terms of the increased profitability of these firms as they grow into international markets. So the extent to which New Zealand benefits from the increased profit share depends on the extent of the New Zealand ownership stake in these firms. This means that the creation of a much larger domestic pool of capital that

can be invested in these internationally engaged New Zealand firms is an important priority.

Overall, then, this approach to getting New Zealand firms into international markets is likely to generate substantial economic benefits to New Zealand. It responds to the shifting nature of New Zealand's comparative advantage, and is consistent with a low weight, high value economy, as well as overcoming a range of other constraints to international expansion by New Zealand firms.

WHAT NEEDS TO BE DONE?

Some of this activity is happening, as described above, but the limited amount relative to potential suggests that further action is required by both business and government.

The most important priority for action relates to the capacity and aspiration of New Zealand firms. Unless New Zealand firms have a strong desire to grow into international markets, and view these types of business models as a way of achieving this, little progress is likely to be made. In a previous Institute report, lack of aspiration among New Zealand firms was identified as a significant constraint on international expansion (Skilling & Boven (2006b)). Some New Zealand firms have shown that they have sufficient aspiration to move abroad in a meaningful way, but more is required.

New Zealand firms also need strengthened internal capacity in order to move in this direction. Managing a global production and distribution presence from New Zealand is challenging, and likely requires the development of new skills and competence within the firm. McKinsey & Company note that "The challenge for executives is to assess the extent and pace of globalisation within their industries and to re-examine their sourcing and manufacturing strategies in hopes of ferreting out competitive advantages. Global supply chain management skills will be critical, as will the ability to build efficient supplier networks in low-cost countries". There are challenges in terms of quality control, IP protection, and contracting. Firms will also need to have a clear sense as to how they will compete, and in which parts of the value chain they have some unique advantage.

In addition to these firm-level changes, public policy can also play a useful role in supporting the development and growth of Kiwi mini-multinationals. First, there should be a clear policy recognition that successful New Zealand companies will not locate 100% of their productive investment in New Zealand, and indeed that this is an area in which New Zealand has a real economic future. There should be public leadership around celebrating and championing firms that succeed using this approach. Over time, this will raise public and business awareness in terms of the possibilities of this approach.

The government's support and funding of the Buy Kiwi Made programme sends the wrong messages in this regard. New Zealand should be supporting companies that have significant international expansion plans, irrespective of whether the production occurs from a New Zealand base or overseas. Business groups also need to actively support and promote these firms.

It is also important that Export Year 2007 be broadly interpreted. The activities undertaken as part of this initiative should be seen as an opportunity to celebrate and support New Zealand companies that are engaged in international markets through outward direct investment and other business models, in addition to exporting. It should recognise that exporting is not the only way in which New Zealand firms can go global.

Previous New Zealand Institute reports have discussed a range of specific policy actions that should be taken in order to encourage international expansion by New Zealand firms through outward direct investment.

An absolutely key priority is to encourage greater New Zealand ownership of these companies, to ensure that a greater share of the profits flow back to New Zealand, and to increase the probability that firms retain a New Zealand presence as they expand their offshore activities. This is a major way in which New Zealand benefits given the lesser contribution from increased domestic employment. If New Zealand is to make international investment a more significant part of its economy, an environment needs to be created in which there is greater domestic ownership of growing New Zealand firms. This can only happen with a much more ambitious personal savings policy; KiwiSaver is a good start, but needs to be expanded if it is to have a material impact.

We have also previously recommended that the international tax regime be made more encouraging of outward investment by New Zealand firms. The government has released a discussion paper canvassing these issues, and rapid action to progress the introduction of reforms in this regard will make an important contribution to firms as they seek to go global (IRD (2006)).

New Zealand Trade & Enterprise (NZTE) can also provide a useful role in terms of encouraging and assisting New Zealand firms to undertake this type of activity. NZTE should aim to source and develop expertise in how New Zealand firms can develop global production and distribution chains. NZTE can play an important role in terms of sharing knowledge and learning with New Zealand firms, and assisting New Zealand firms to learn from the experiences of others.

And lastly, although a key motivation for adopting these business models is to allow New Zealand firms to reduce their reliance on New Zealand's international links, quality air transport

and communications links from New Zealand are needed in order for firms to manage these global operations. New Zealand needs high quality air transport links so that New Zealand managers can readily get to market. And world-class communications infrastructure is needed to support data transmission, video conferencing and the like, to allow New Zealand firms to monitor and manage their globally distributed activities.

SUMMARY

Increasing the number of New Zealand firms with a global presence holds substantial growth potential for the New Zealand economy. Firms that expand into international markets through outward FDI or contracting production out to offshore parties, rather than through the traditional model of exporting goods from New Zealand, will avoid many of New Zealand's remaining supply chain constraints. As such, this approach will make a significant contribution to many internationally-engaged New Zealand firms sustaining a competitive position in the global economy. It provides real opportunity for New Zealand firms to grow significantly.

However, although some New Zealand firms have been moving in this direction with great success, the total scale of this activity remains reasonably small relative to the activity observed in many other developed countries. Changes are required by both business, in terms of increased capacity and aspiration, as well as in terms of public policy areas including international tax, NZTE's activities, and encouraging personal savings.

6 DEVELOPING VIRTUAL SUPPLY CHAINS

Substantial improvements in technology offer the opportunity for New Zealand to reduce its emphasis on transporting relatively heavy, low value goods to distant markets. In addition to firms re-thinking location and developing a global presence, as described above, New Zealand ought to be investing in virtual supply chains that allow New Zealand firms to supply weightless products to global markets electronically. Examples of weightless activities include the creative industries, research-based activity, financial services, contact centres, software, and so on.

Virtual infrastructure offers opportunities not associated with the physical infrastructure of shipping and air links that New Zealand has relied on historically. The export of services through communications technology is not constrained by issues of cost and speed to market to the same extent. As such, this approach offers the potential for New Zealand firms to compete on a similar playing field as their international competitors without the traditional disadvantage associated with physical distance.

These developments ought to lead to very significant changes, particularly for a remote economy that faces significant transport costs. Disruptive changes in the environment ought to create significant opportunities for the New Zealand economy. Indeed, the rapidly declining costs of communication are contributing to a shift in New Zealand's comparative advantage towards high-value, low-weight goods and services – including weightless activities.

This section considers the type of activities that are weightless, describes New Zealand's current level of exports of weightless services, outlines the potential for growth, and lastly discusses the actions required by business and government to develop virtual supply chains.

WHAT IS THE WEIGHTLESS ECONOMY?

The weightless economy is a term that describes economic activity that does not involve the transaction of a physical product. In an international context, it means activities that can be delivered to an international market by electronic means in real time.

The type of weightless activity that has received the most international attention is the outsourcing by companies of business processes to lower cost countries in order to enhance the efficiency of the company's operations. This includes activities such as call centres, preparation of tax returns, transcription services, and other routine activities. The reach of this activity is increasing; the number of tasks that can be digitised and performed anywhere is growing.

This is big business. The McKinsey Global Institute estimate that India's offshoring sector, for example, which is dominated by IT, will employ about 700,000 people and generate over $17 billion in revenue. By 2007-8 it is estimated that weightless activity will employ about 1.5 million people in India and will account for about 7% of India's GDP.

More generally, companies are using technology to sell services directly into global markets. Firms can use technology to access large global markets without having to physically move goods to these countries. For example, consider the creative industries, software development, financial services centres, and consultancy services. Entire industries have emerged to take advantage of these opportunities.

For firms involved in this type of production, New Zealand's physical location is of much less consequence. The value delivered to customers is a service rather than a physical product, and so is affected to a much smaller extent by New Zealand's physical remoteness. Location only matters insofar as firms are able to access the people and other inputs that they need in an efficient, competitive environment.

EXTENT OF WEIGHTLESS ECONOMIC ACTIVITY

Only a small proportion of New Zealand's current exports fit into the weightless category, as described in Table 2. New Zealand's weightless exports account for only about 5% of New Zealand's total exports, at about $2.2 billion in 2006. The major categories of these weightless services are communication services and computer and information services. Tourism and export education that is delivered in

TABLE 2: EXPORTS OF WEIGHTLESS SERVICES

	1996	2006	Share of exports	CAGR
Communication services	n.a.	282	0.6%	
Construction services	n.a.	45	0.1%	
Royalties and licence fees	20	170	0.4%	
Financial and insurance services	33	168	0.4%	
Computer and information services	39	272	0.6%	
Other business services	667	1,217	2.7%	
Total weightless services	759	2,154	4.9%	11.0%
Total services exports	6,995	11,872	26.8%	5.4%
Total goods exports	20,546	32,430	73.2%	4.7%

Note: n.a. indicates data not available. CAGR is Compound Annual Growth Rate. Years ending in June. Values expressed in $m.

Source: Statistics New Zealand.

New Zealand is excluded from this definition, as they are both based on the physical movement of people.

These weightless exports have grown more rapidly than other parts of New Zealand's export base, but off a very low base. Over the past decade, for example, growth in weightless exports has been 11.0%, compared to 5.4% for the total growth of exports of services and 4.7% for New Zealand's exports of goods. But despite this relatively rapid growth, New Zealand's weightless exports still remain a minor part of New Zealand's international economic engagement.

This relatively low contribution from New Zealand's weightless exports is particularly evident in comparison to other OECD countries. Whereas New Zealand's weightless services exports account for about 20% of total services of exports, the average across OECD countries is about 50%. The Boston Consulting Group (2004) note that "most other developed countries tend to export knowledge-based services rather than natural resource-based services, as tourism is in New Zealand". New Zealand is not an active participant in the weightless economy.

Internationally, exports of business services have been growing rapidly and account for a large and increasing share of exports from OECD countries. This type of trade has been a major driver of global trade growth over the past decade or so. Countries like Ireland and Singapore have made very substantial moves in this direction; the World Trade Organisation, for example, estimate that Ireland exported over US$45 billion of commercial services in 2003 and Singapore exported over US$21 billion, compared to US$1.2 billion of exports of commercial services from New Zealand.

However, although New Zealand's presence in the international weightless economy appears to be relatively limited compared to other developed countries, a growing number of New Zealand firms are participating successfully. Several of these firms are described in the accompanying Box.

Some of these New Zealand firms are engaged in niche areas of business outsourcing, providing services to foreign companies ranging across PR services, software as a service, and IP management. Many of these firms are currently small, but have growth opportunities. New Zealand firms are unlikely to be competitive in parts of the weightless economy that require access to large amounts of low cost labour, as may be the case in India, but there are many high-value opportunities in activities that do not require the firms to have substantial scale.

New Zealand firms are also using communications technology to sell into global markets in diverse areas

New Zealand weightless exporters

Film industry specialist Weta Digital successfully serves international clients in a weightless manner. They make extensive use of communications technology to send and receive images that are digitally enhanced at their base at Miramar in Wellington. The greatest challenges they face in operating from New Zealand are the high prices required to deliver data overseas and the poor state of the telecommunications network outside of the major CBDs in New Zealand.

Right Hemisphere designs 3D graphical software from their base in Auckland. They now have a partnership with Adobe (their product is a plug-in to Adobe Acrobat) and have a sales and marketing presence in the US.

Xero is a start-up company that provides an accounting package for small and medium-sized businesses through a web-based interface. They plan to serve the 'long tail' of smaller firms though innovative technology. The product development is undertaken in New Zealand with a franchise-like distribution model overseas. Because the service is delivered on the internet, it can be readily expanded.

Crystal Solutions work to support Microsoft's IP management functions from their base in Auckland. Started about two years ago, Crystal's 20+ staff prepare and distribute electronically over 2,000 reports a month to Microsoft offices around the world. The company was founded on the specialist knowledge developed by a New Zealander while working overseas, who found that the work could be done from anywhere in the world provided there is adequate internet access.

Source: Company interviews; publicly available information.

ranging from the creative industries, hedge fund advisors, and business consultants. Much of the business of these firms is conducted from New Zealand and the transactions occur electronically.

POTENTIAL BENEFITS TO NEW ZEALAND

2007 is the 125th anniversary of the introduction of refrigerated shipping from New Zealand. The SS Dunedin sailed for London in 1882. The introduction of this transport technology into New Zealand's supply chains generated very substantial benefits for the New Zealand economy, in terms of making a new type of economic activity feasible. By opening up virtual supply chains for New Zealand firms, communications technology has the potential to have

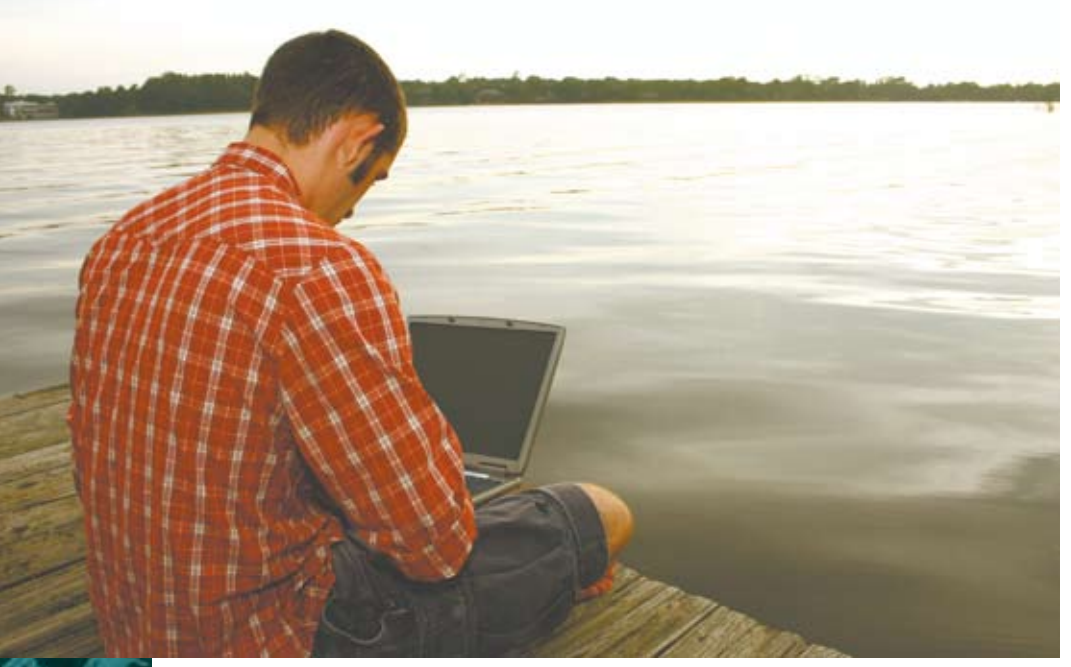
an even more profound effect on the New Zealand economy.

In particular, communications technology will enable New Zealand firms to access a global market from a New Zealand location, without facing the conventional disadvantages of physical location. Despite the relatively limited amount of weightless activity to date in New Zealand, there is significant potential for this to make a major contribution to the New Zealand economy.

The potential benefits are difficult to quantify precisely because the economic upside will depend in large measure on the future growth of New Zealand firms. But based on the experiences of companies such as Weta Digital and Right Hemisphere, there are substantial opportunities for New Zealand-based companies to use communications technology to sell into global markets. And as this infrastructure is provided, new types of economic activity are likely to emerge. New Zealand could become a very different economy.

The international experience gives a sense of what is possible in this regard. Take Skype as an example. Skype is based in Estonia, and sold to eBay for a package that may reach US$4 billion. Their model of internet telephony is scalable because it is delivered over the internet. Technology makes it easier to create significant value in a short period of time from anywhere in the world.

And where the company is delivering a virtual service, like software, rather than a personal



service, such as a call centre, some of the input constraints around international expansion from New Zealand are reduced. This type of business platform means that the firm's international activities can be more readily scaled up. For example, a New Zealand firm selling software can double its international sales with double the number of downloads from its website, without requiring a significant increase in production capacity.

The development of the virtual supply chain infrastructure will also make New Zealand a more attractive location for foreign firms to locate this type of economic activity. With this infrastructure in place, firms in weightless industries will be able to access global markets from New Zealand, and this will provide a greater incentive for them to locate a presence in New Zealand. Firms will no longer be deterred by New Zealand's physical remoteness as they were when physical supply chain links were the only option to access global markets. And as long as firms are confident they can connect to global markets from New Zealand, New Zealand's lifestyle proposition and distinctive time zone positioning become even more attractive assets.

WHAT NEEDS TO BE DONE?

To participate actively in the weightless economy, New Zealand needs to have access to world-class communications infrastructure that links it to the rest of the world. ICT is the critical infrastructure of the 21st century, and New Zealand should aim to be a world-leader because of its geographic isolation. The provision of these virtual supply chains will make a range of economic activity possible in New Zealand that was not previously possible. Some types of weightless activities are very demanding in terms of access to high-speed broadband capacity; for example, firms in the creative industries involved in screen production and animation.

Unfortunately, however, New Zealand's current broadband performance is relatively poor. In addition to broadband usage rates that are just 60% of the OECD average, the quality of New Zealand's broadband does not compare well to other developed countries.

A recent study prepared for InternetNZ reports that New Zealand is at the midpoint of the 26 OECD countries sampled in terms of broadband products offered over DSL, with an average promised speed of 2.7Mbps. Setting aside issues as to whether the promised speeds are delivered, New Zealand is one of only two countries in the survey without a plan that offers speeds above 5Mbps. Over two-thirds of the countries surveyed offered speeds above 10Mbps, and over one-third delivered speeds

above 20Mbps. New Zealand ranks second to last out of the 26 countries with an average upload speed offered of 280Kbps. Over half the DSL products offered in New Zealand have upload speeds of only 128Kbps.

Overall, the InternetNZ study assesses the internet access services offered in New Zealand as 22nd out of the 26 OECD countries surveyed, due to poor services offered in business categories and the imposition of data caps. Firms report difficulties with the quality and pricing of communications technology, and are concerned that New Zealand firms are disadvantaged relative to their competitors in other countries, including Australia, in this regard.

The government has committed to making broadband a priority, with the local loop unbundling decision being one of their key initiatives in this regard. The hope is that local loop unbundling will induce greater investment and competition in the domestic broadband market, with improved quality and pricing becoming available. However, it is not clear that this decision will be sufficient to create world-leading virtual supply chains from New Zealand.

Given the strategic economic importance to New Zealand of being able to participate in the weightless economy, New Zealand should be seeking to distinguish itself in terms of being a highly connected country. This could be a source of real advantage for New Zealand, and a key part of New Zealand's national branding. Indeed, there are many examples of strong national leadership being exerted in a number of countries, particularly in Asia, to develop world-leading communications infrastructure (Bleha (2005)). New Zealand has more work to do in this regard.

In terms of identifying priorities for action, it is useful to think about New Zealand's communications infrastructure in three parts: the so-called 'last mile', which is the link between the user and the local exchange; the domestic communications network; and the communications infrastructure that links the New Zealand network to other countries.

The local loop unbundling decision is expected to have an impact on the last-mile issue, with more firms co-locating their equipment with Telecom in the local exchanges to provide services to customers. It is too early to know whether this initiative will be successful, but it seems to be creating a lot more energy in the sector.

Telecom has committed to rolling out ADSL2+ across its network, which is expected to deliver speeds of up to 24Mbps to some parts of the country. And firms such as Woosh are investing in developing wireless networks in parts of New Zealand.

But the questions for public debate are what sort of domestic network will serve New Zealand best over the coming decade and more, and what sort of investments New Zealand is prepared to make.

For example, investing in a 'fibre to the home' network would potentially deliver super-fast broadband, perhaps up to 100Mbps, to New Zealand firms and households. These types of services are being rolled out in countries like Japan and South Korea. But such investments are expensive, perhaps in the order of a couple of billion dollars, and are complicated by New Zealand's small, geographically spread population base. This obviously limits the commercial incentives of firms to make such investments.

But these costs should be assessed against the benefits of positioning New Zealand firms to compete successfully in the international weightless economy. In order to make this decision, there should be greater clarity as to what New Zealand is looking to achieve in terms of upgrading its communications infrastructure, and what stakes are associated with this decision. Is New Zealand comfortable with a good communications network or is there demand for something much closer to the leading edge?

Beyond these last-mile issues, the core domestic network infrastructure, sometimes referred to as the backbone network, is not currently a capacity constraint in New Zealand.

In addition to the quality of the domestic broadband infrastructure, the infrastructure that links the New Zealand network to other countries also has a significant impact on the ability of New Zealand firms to connect virtually to the global economy. New Zealand needs to have access to international pipelines that can carry data, voice, and video traffic. High-speed, well-priced broadband within New Zealand is important, but so too is access to the infrastructure that links New Zealand's domestic communications network to the rest of the world.

New Zealand's links to the global internet rely primarily on the privately-owned Southern Cross Cable, which connects New Zealand to the US and Australia through a trans-Pacific cable.[8] The Southern Cross Cable was laid in 1999 and cost US$1.5 billion. It now carries 75% of New Zealand's international communications traffic, with the remaining traffic using older phone lines, which are much lower quality, and satellite.

Traffic on the Southern Cross Cable has grown rapidly over the past

[8] *The Southern Cross Cable is 50% owned by Telecom, with SingTel Optus owning 40% and Verizon the remaining 10%.*

few years. In response, plans have recently been announced to substantially expand the capacity of the Cable. As traffic has grown, the substantial losses that were initially incurred by the Cable's owners have reduced and profits are now beginning to emerge.

These expansion plans mean that there are unlikely to be significant capacity issues. But there are issues around the pricing of the access to the Cable. For example, the cost of sending data to London is higher from New Zealand than it is from Australia. This places New Zealand firms at a competitive disadvantage in activities that rely on international communications.

These pricing issues partly reflect the fact that the industry has some characteristics of a natural monopoly. There is only one high-speed cable linking New Zealand to the world, and so New Zealand's international communications flow through one dominant provider. And particularly with the increased capacity currently being planned, there is little commercial incentive for another firm to lay an additional cable to service the small New Zealand market. New Zealand's small market and physical remoteness means that New Zealand is not going to be as well served by competing providers as the US, Europe, or Asia.

Direct ways to address the pricing issue are hard to identify. Private companies made a risky investment in the Southern Cross Cable and obviously deserve an appropriate return on this investment. But New Zealand has a strategic interest in being able to connect to the world on competitive terms, and this should be an important part of the broadband debate. Ensuring that New Zealand firms have well-priced access to international networks is vitally important if New Zealand is to develop and sustain strengths in the weightless economy. This situation ought to be monitored and explored further.

In sum, New Zealand's virtual supply chains do not compare favourably to many other developed countries. There are significant issues to be addressed in terms of the quality of the last-mile connections as well as the terms of access to New Zealand's international communications network. Even with very substantial technological progress, it is not automatically the case that New Zealand firms can engage in the global economy on the same basis as firms from other countries. Investments need to be made.

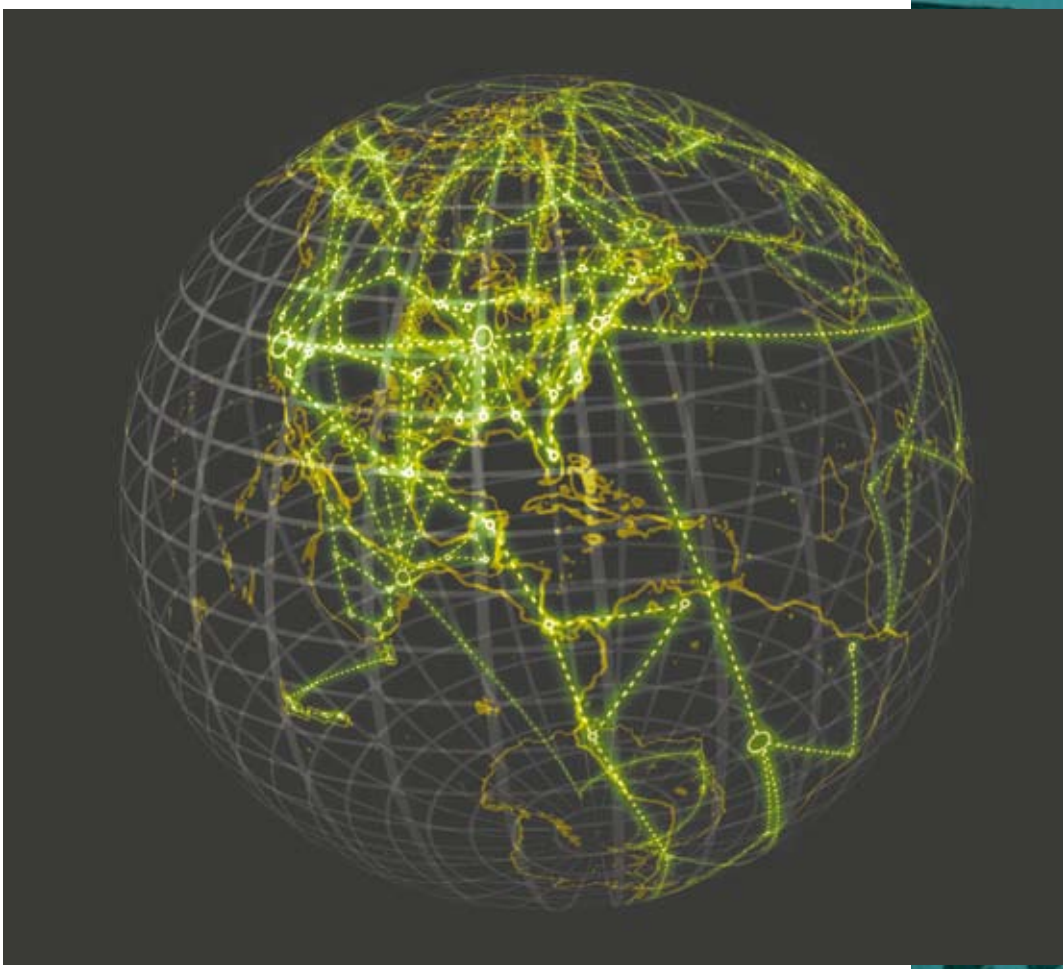
SUMMARY

New Zealand needs to invest in developing virtual supply chains that make it possible for firms to easily reach the rest of the world from New Zealand. Given the constraints associated with New Zealand's

physical supply chain links, it is vital that New Zealand's virtual supply chain links are absolutely world-class.

Investing in New Zealand's communications infrastructure will assist New Zealand firms to move towards being a weightless economy, which is less dependent on shipping heavy, relatively low value goods across long distances to market. There is substantial potential for New Zealand firms to expand their operations into global markets using this technology platform.

Significant economic upside is possible because this approach avoids many of the conventional disadvantages associated with New Zealand's physical location. However, achieving these benefits will require significant investments in communications infrastructure as well as the continued development of new business models.



7 CONCLUDING REMARKS

Advances in transport and communications technology have made it much easier for New Zealand firms to connect to the global economy from the most physically remote developed country in the world. And yet ongoing disadvantages remain. It still takes longer and is more expensive to transport goods and services from New Zealand to often distant international markets than is the case for firms in most other developed countries.

In an intensely competitive global environment, these relative differences can have a big impact on whether a New Zealand firm succeeds or fails in global markets. The efficiency of supply chains is an increasingly important determinant of the competitive position of firms. A firm can be highly innovative and productive, and yet still not succeed if it cannot get its goods and services to the relevant market in a timely and efficient manner. Acting to enhance the efficiency of the supply chains of New Zealand firms will therefore make an important contribution to increasing New Zealand's level of international economic engagement.

The first step in this regard is to protect and strengthen New Zealand's existing international air and shipping links. Actions can be taken to encourage efficient investment at the ports, to promote tourism flows, and to ensure that New Zealand continues to be serviced by a national airline. These actions are worthwhile and are likely to significantly reduce the risk of New Zealand's international connectedness being degraded and New Zealand becoming increasingly peripheral. Unfortunately, however, these actions are unlikely to generate substantial economic upside. None of them are game-changing in terms of New Zealand's connectedness to the global economy. Even if all the proposed actions were implemented, it will still take over a month to ship goods to Europe and New Zealand's air connections will not be characterised by the dense networks observed elsewhere. The unfortunate realities associated with being a small, remote economy mean that New Zealand firms will be subject to ongoing disadvantage.

The good news is that New Zealand can do much more than simply manage the downsides of New Zealand's physical remoteness. There are emerging opportunities to strengthen the international competitive position of New Zealand firms.

Technological progress over the past few decades has created the potential both for new business models – the emergence of the genuinely global firm, with the value chain fragmented across geography – as well as for new types of economic activity that rely on communications technology. Progress in communications technology offers the real potential for New Zealand firms to avoid many of the ongoing disadvantages of physical location, and leverage the advantages that New Zealand firms have.

These developments appear almost custom-made to benefit New Zealand, just as the introduction of refrigerated shipping in the late 19th century generated transformational benefits for the New Zealand economy. In a similar way, communications technology that allows New Zealand firms to establish global operations from a New Zealand base has the potential to transform the New Zealand economy.

New Zealand now has an opportunity to compete in the global economy on terms that may be much more advantageous. Rather than an export economy that is largely based on transporting relatively low value to weight goods long distances to international markets, New Zealand now has an emerging opportunity to move to an economy that is characterised by high-value, low-weight forms of international engagement that are far less sensitive to physical distance.

In this approach, the New Zealand economy of the future will increasingly be unrestricted by the physical space of New Zealand. New Zealand firms will be based in New Zealand but will increasingly generate value through knowledge-based activities, either by controlling a global presence from New Zealand or by virtually distributing weightless services to global markets.

Realising this opportunity will require significant changes in New Zealand policy settings, in areas ranging from savings and international tax to upgrading New Zealand's communications infrastructure, as well as in terms of the continued development of business models employed by New Zealand firms. Over time, this will result in a New Zealand economy that looks significantly different from the current economy.

Connecting New Zealand to the world, and making progress in terms of overcoming the tyranny of distance, will require substantial investments of resource as well as time, effort, and attention. But moving in this direction will bring distant markets so much closer to New Zealand firms. New Zealand need not be the 'last bus stop on the planet' any longer.

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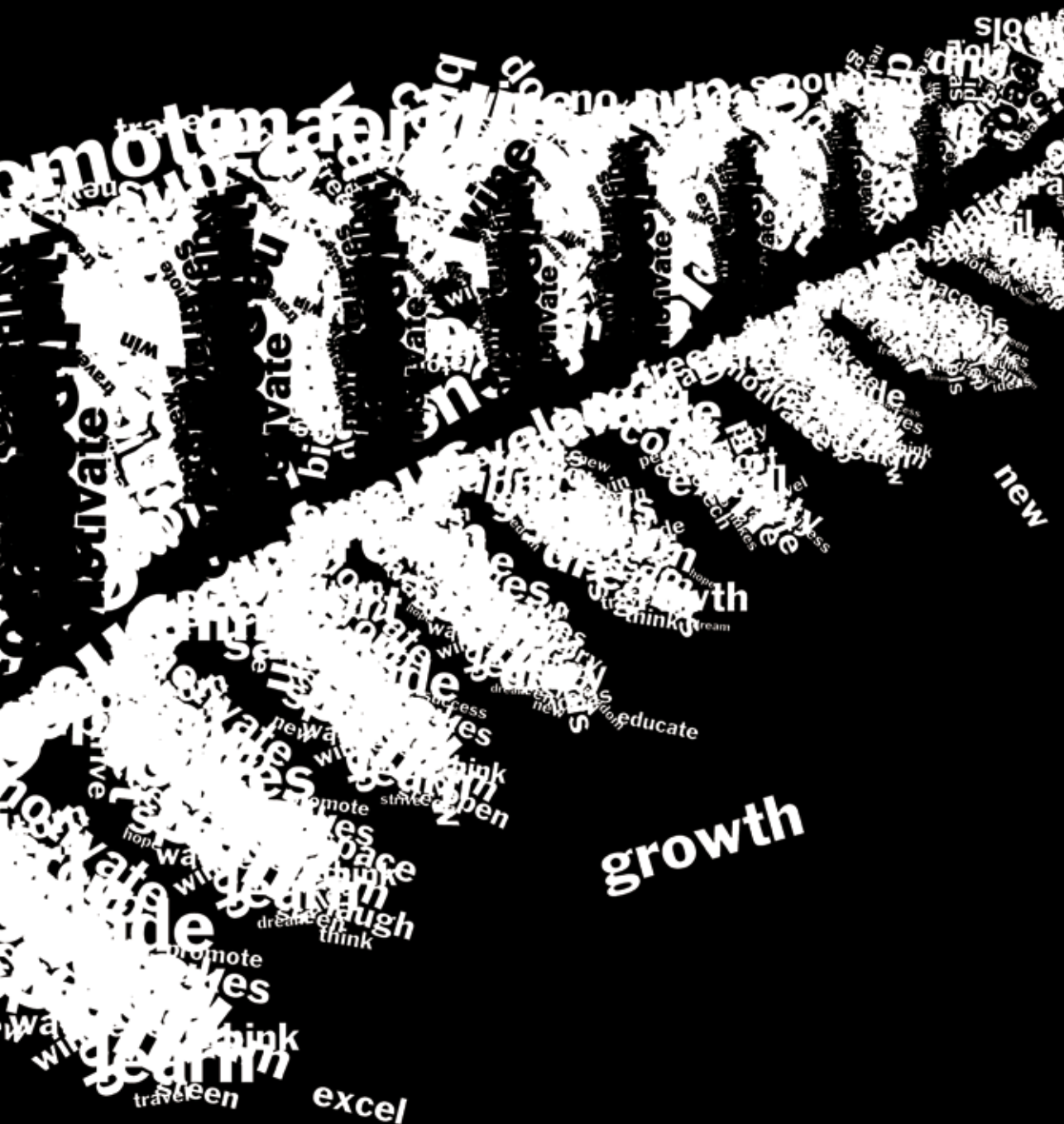
NOTES



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