

# A broadband strategy for New Zealand: Why world-class communications infrastructure matters and how we can get it

Project Outline  
September 2007

[www.nzinstitute.org](http://www.nzinstitute.org)

# EXECUTIVE SUMMARY

## **1. Context**

New Zealand faces a significant economic challenge and world-class communications infrastructure is likely to be a key component of addressing this challenge.

## **2. Situation today**

Progress is being made in improving New Zealand's communications infrastructure, but there is a need for a more strategic debate that leads to agreement on the desired course and speed for investment over the coming years.

## **3. Informing the debate**

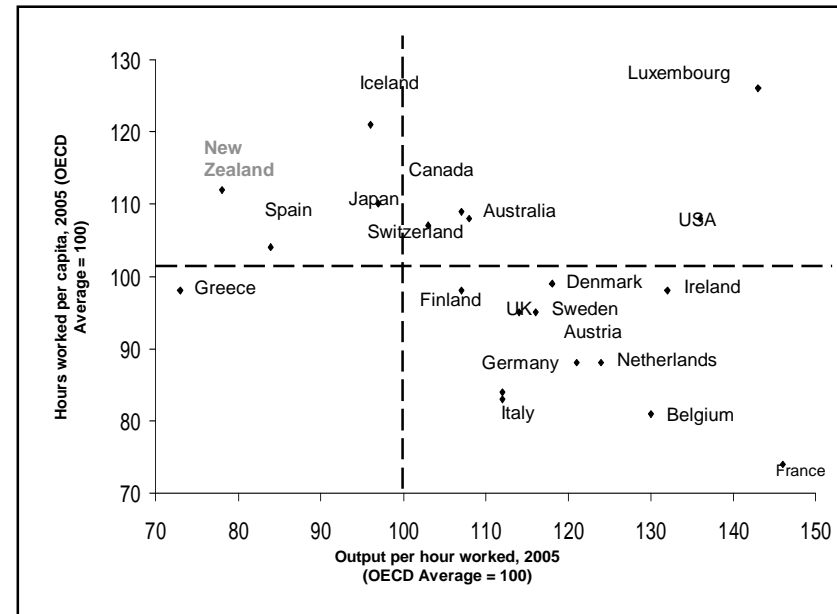
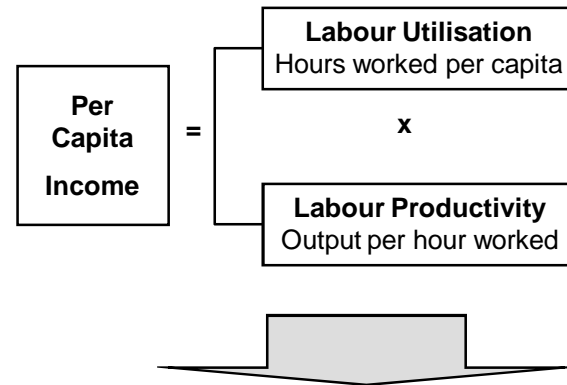
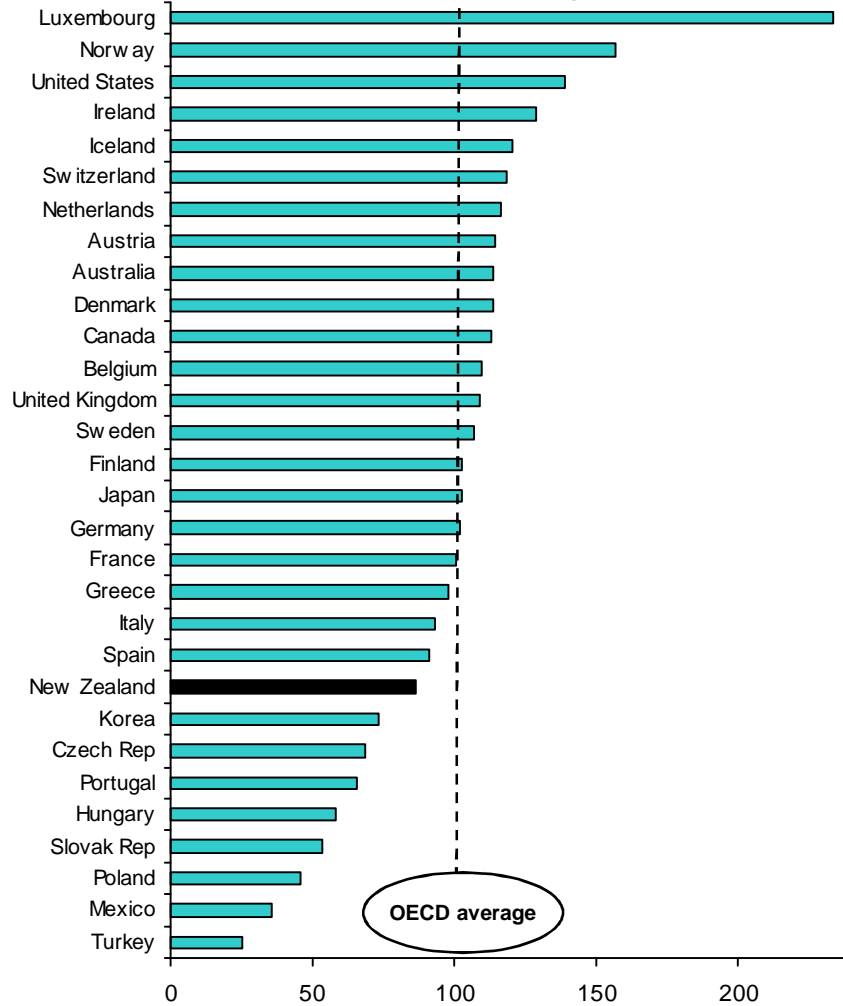
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## **4. The Institute's contribution**

The New Zealand Institute will be undertaking a research project over the next several months to define a national aspiration for broadband and to determine a preferred approach to achieving that aspiration.

# NEW ZEALAND HAS RELATIVELY LOW PER CAPITA INCOME DUE TO LOW LABOUR PRODUCTIVITY

**GDP per capita (PPP)**  
Indexed to OECD average, 2005



Source: OECD.

## TO GROW ITS ECONOMY, NEW ZEALAND NEEDS TO GO GLOBAL



As a relatively small economy, New Zealand firms need to access global markets in order to achieve scale. A 4 million person domestic economy will not be sufficient to deliver strong economic growth.

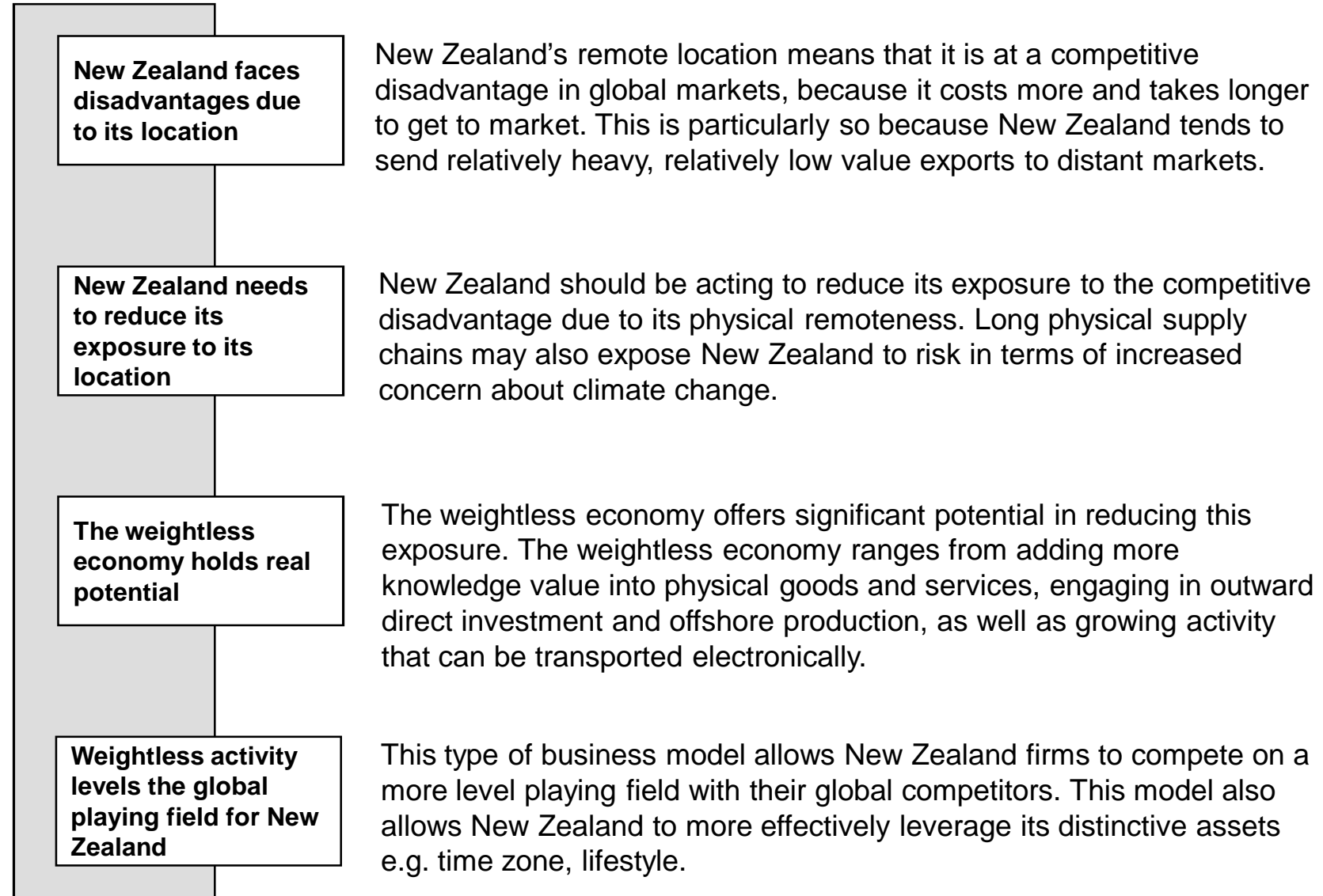
Firms and countries that have higher levels of international economic activity generate stronger rates of income and productivity growth. They get to scale, learn from international best practice, and grow more rapidly.

However, New Zealand's international economic engagement is relatively low, and not growing rapidly compared to most other developed countries, both in terms of exporting and outward direct investment.

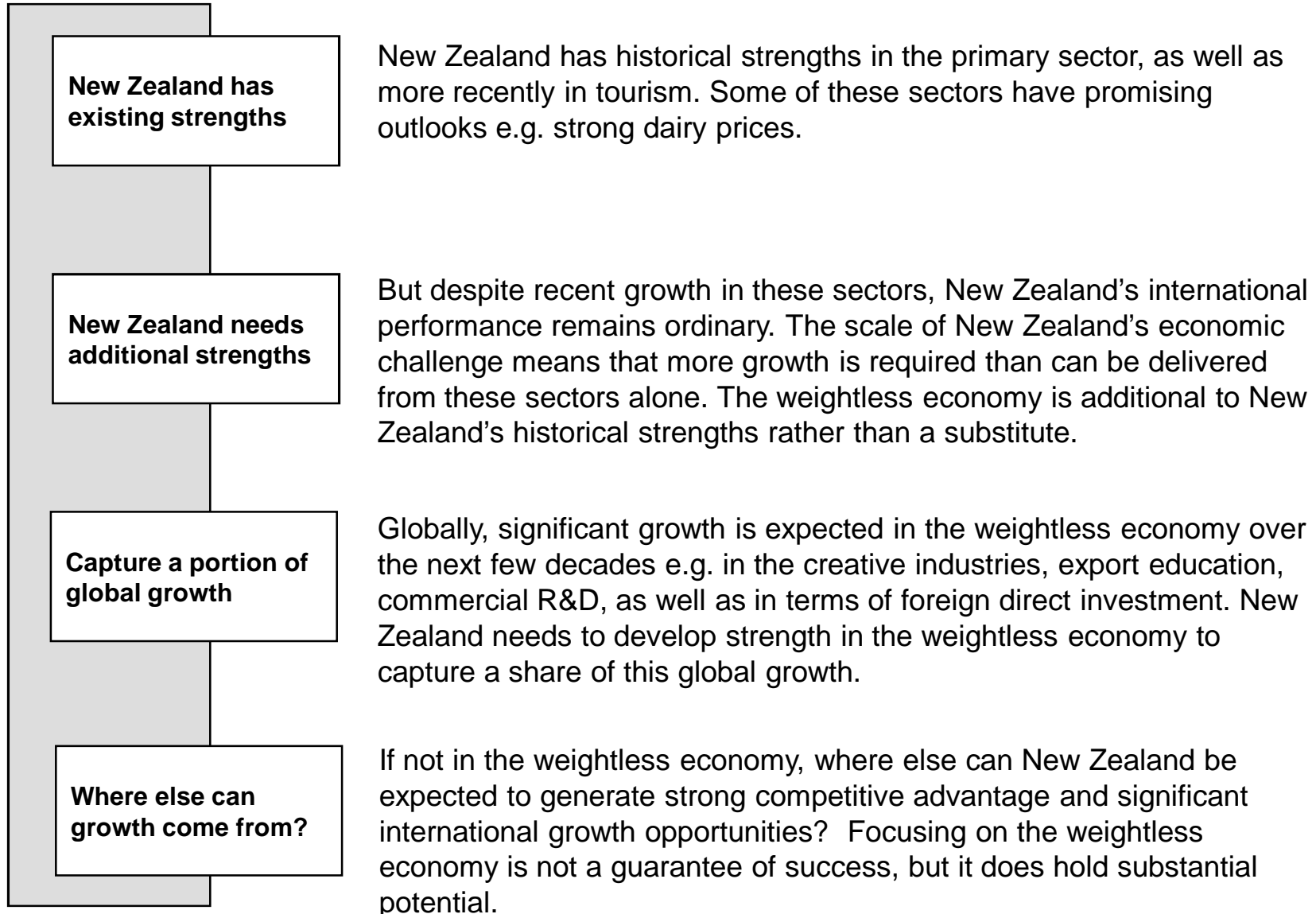
New Zealand is both small and physically remote from major markets. This makes it more difficult and costly to expand into offshore markets, particularly for New Zealand firms that will often be relatively small.

How is New Zealand most likely to be able to compete effectively in global markets? What sort of business model makes most sense for New Zealand in terms of reducing the exposure of New Zealand firms to small scale and physical remoteness?

## DEVELOPMENT OF THE WEIGHTLESS ECONOMY SHOULD BE A HIGH PRIORITY FOR NEW ZEALAND



## THIS SHIFT IN EMPHASIS IS NECESSARY FOR NEW ZEALAND TO GROW STRONGLY



## THE NEW ZEALAND INSTITUTE HAS IDENTIFIED AN AGENDA FOR ACTION TO CREATE A WEIGHTLESS ECONOMY


1. Create a business environment that supports international growth by New Zealand firms

2. Invest in world-class communications infrastructure

3. Invest in R&D

4. Invest in the education system, particularly universities

5. Attract FDI into New Zealand by firms in the weightless economy

 = focus of current discussion

# NEW ZEALAND NEEDS TO INVEST IN WORLD-CLASS COMMUNICATIONS INFRASTRUCTURE

**Communications infrastructure is vital for weightless growth**

Communications infrastructure is a key piece of strategic infrastructure for a remote country like New Zealand. It allows New Zealand firms to access world markets in the same way as firms located anywhere else.

**Communications infrastructure enables economic transformation**

Communications technology should be at least as transformational for the New Zealand economy as refrigerated shipping was for parts of the primary sector 125 years ago. It will enable the growth of new types of economic activity from New Zealand.

**Other countries are moving quickly**

Substantial investments in communications infrastructure are being made in other countries to position themselves as a location for this economic activity. This puts pressure on New Zealand's competitive position.

**New Zealand needs to invest in communications infrastructure**

If New Zealand wants to become a significant participant in the global weightless economy, there is a need to invest in the infrastructure that makes this possible. Physical infrastructure continues to matter but communications infrastructure will be increasingly important.

**New Zealand needs to understand these benefits**

New Zealand needs to better understand the benefits of world-class communications and then decide what sort of communications infrastructure it wants as a country.

## THE INSTITUTE IS COMMENCING A PROJECT THAT AIMS TO DEVELOP A BROADBAND STRATEGY FOR NEW ZEALAND

**Broadband is not a silver bullet**

Commencing our work on the weightless economy with a project on broadband is not because of a view that broadband is a 'silver bullet'. World-class communications infrastructure is one of many things on which progress needs to be made. But it is hard to see how New Zealand can develop new strengths without investing in world-class communications infrastructure.

**Broadband is a good place to start**

Broadband should make New Zealand a more productive – and therefore attractive - place for firms and workers. It has the advantage of being 'immobile' so that investments in communications infrastructure generate benefits in New Zealand – as opposed to investing in the education system, where some of the benefits are lost as people move overseas.

**There is a window of opportunity**

There is an increasingly public debate on broadband, and a sense that strategic decisions have to be made.

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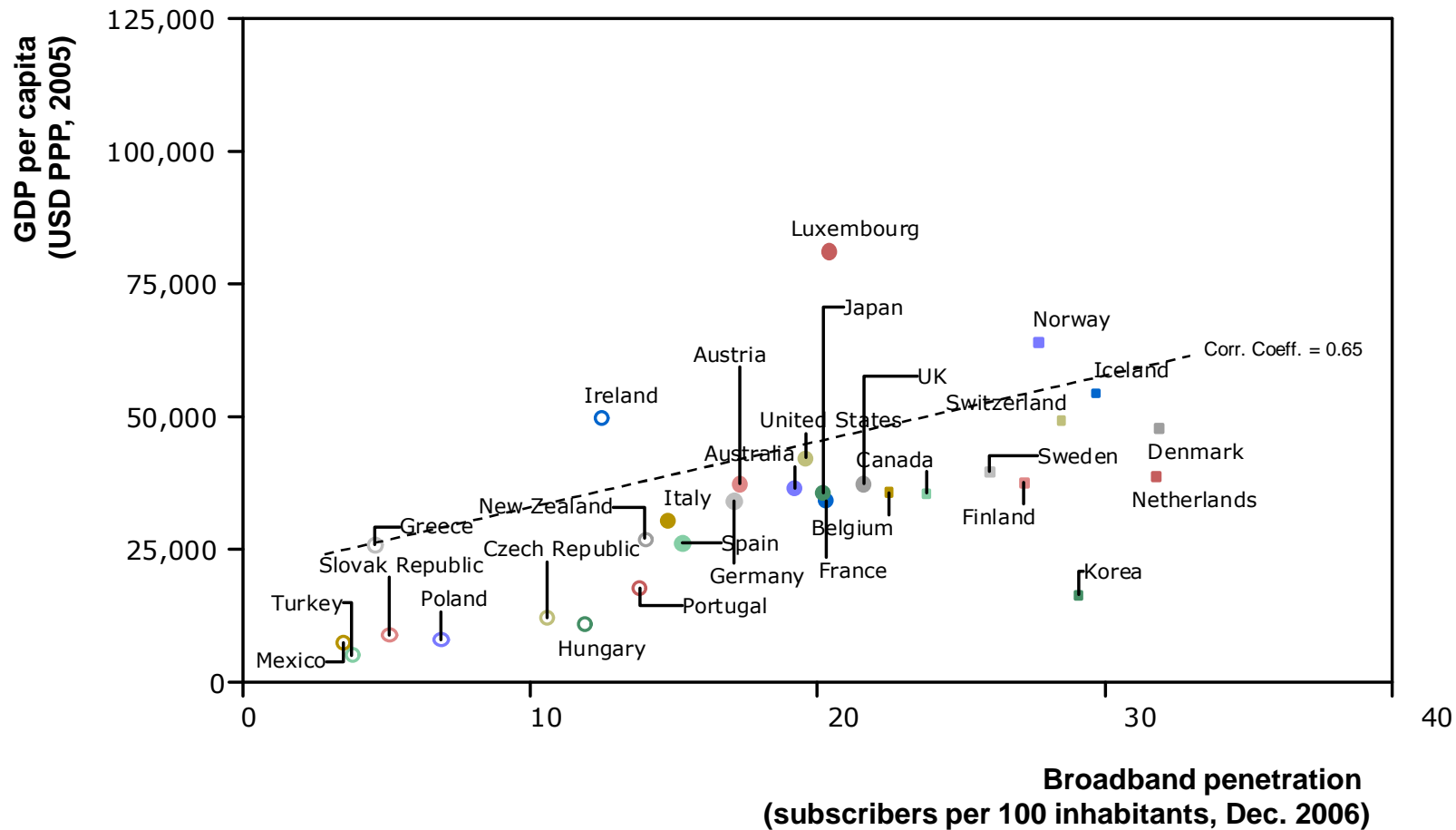
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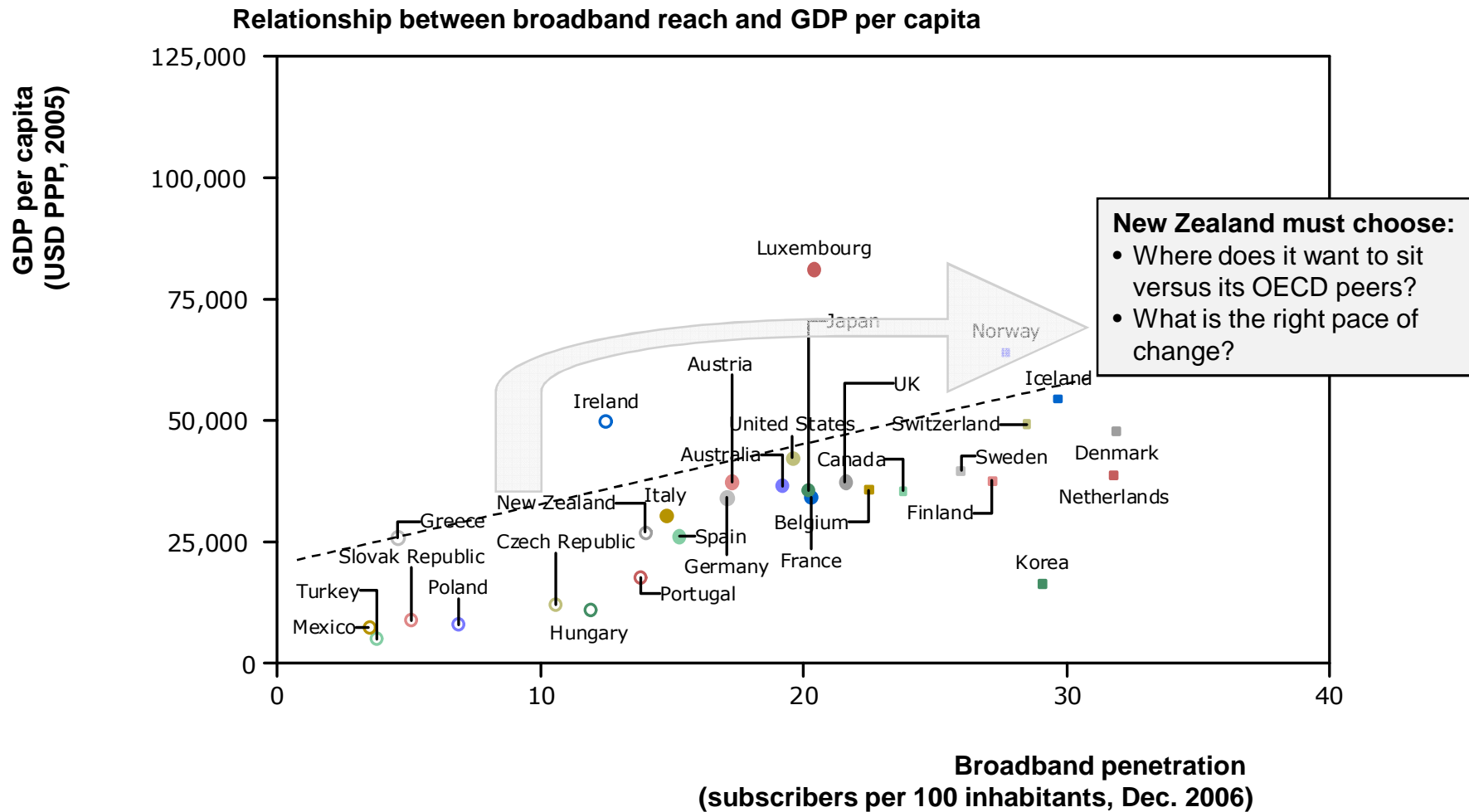
# NEW ZEALAND'S BROADBAND PENETRATION IS ABOUT WHERE WE WOULD EXPECT IT TO BE GIVEN NEW ZEALAND'S INCOME LEVEL

Relationship between broadband reach and GDP per capita



Note: New Zealand ranks at about the same level on other dimensions of broadband performance e.g. speeds.  
Source: OECD.

# BUT NEW ZEALAND MUST NOW ACTIVELY CHOOSE THE RATE AT WHICH TO DEVELOP ITS COMMUNICATIONS INFRASTRUCTURE



## TO DETERMINE THE BEST APPROACH FOR NEW ZEALAND WE NEED TO ANSWER FIVE QUESTIONS

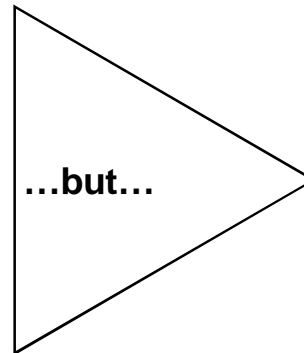
Does world class communications matter to New Zealand?

Do we need to get there sooner rather than later?

What sort of technology does this require?

How much would it cost?

How do we pay for it?



**...the public debate is not focused on seeking to answer these questions**

# THE DISCUSSION TO DATE HAS BEEN ON FOCUSED ON THE DETAILS RATHER THAN ON THE BIG PICTURE

How do we shift the debate from this...

...to step change?

How do we regulate the incumbent?

**Infrastructure: regulation**

- “Telecom offers own version of ‘separation’”
- “Telecom says market underestimating cost of regulatory change”
- “Mobile phone operators eye spectrum sale”
- “Rivals urge new broadband phone rules”

What are the incremental elements of the communications infrastructure?

**Infrastructure: technology**

- “Telecom’s local loop offer”
- “Questions raised about number portability”
- “Telecom makes a big call on [CDMA] network”
- “Changes proposed for Telecom’s bitstream charging”
- “Kiwi ingenuity drives down phone costs”
- “How can we get faster Internet?”

What are the incremental moves different users are making?

**Local/ regional projects**

- “Wireless lifeline for country customers”
- “Council plans better broadband”
- “Just 2000 takers for Govt’s \$25m rural internet
- “Orcon joins Tomizone hotspot scheme”
- “Plug pulled on third network [Tauranga]”
- “Kiwi libraries get access to 10-gigabit internet service”

What big changes can we make for the future?

“The future direction of the internet superhighway”

“Australia: Broadening the broadband debate”

“The Aussie broadband bonanza”

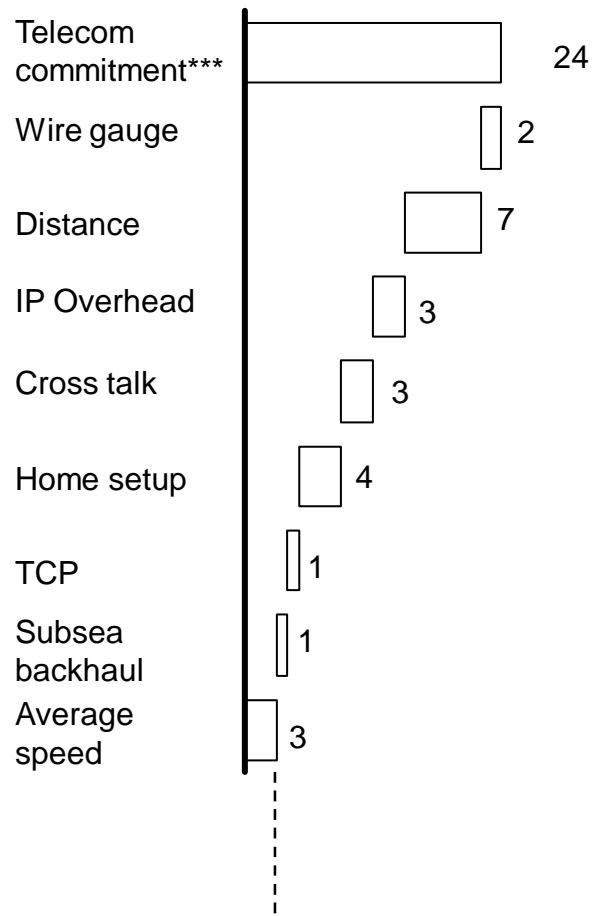
“Labour unveils \$5 billion Australian national broadband plan”

Singtel gets \$1b for Aussie broadband plan

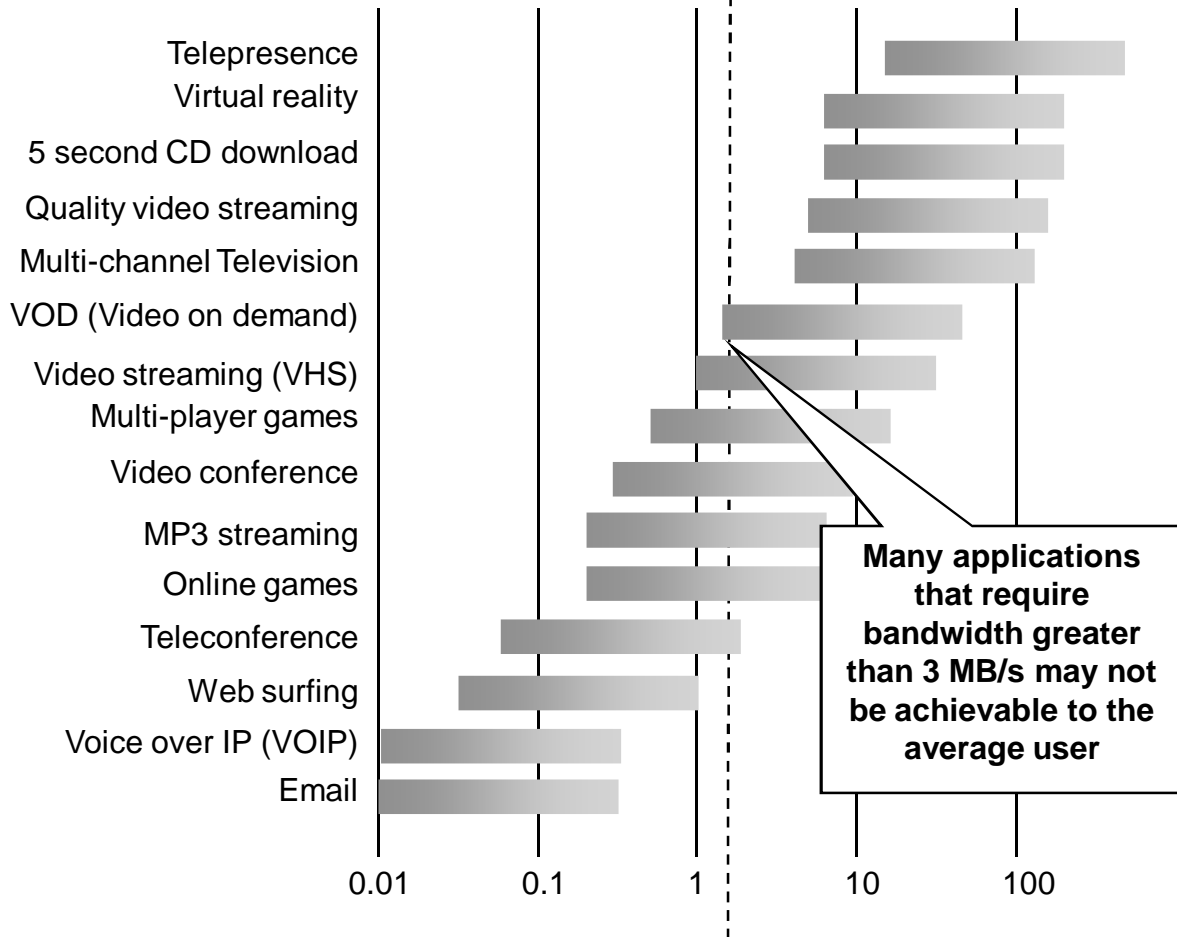
“Cable-the-country challenge could shake broadband blues”

# EVEN IF THE CURRENT LOCAL LOOP AND SEPARATION ISSUES ARE RESOLVED NZ IS STILL A LONG WAY FROM BEST IN CLASS

Typical systems losses from theoretical\*  
MB/s



Indicative application bandwidth demands\*\*  
MB/s



Many applications that require bandwidth greater than 3 MB/s may not be achievable to the average user

\*Australian example. All elements are common to New Zealand except distance and wire gauge which may differ.

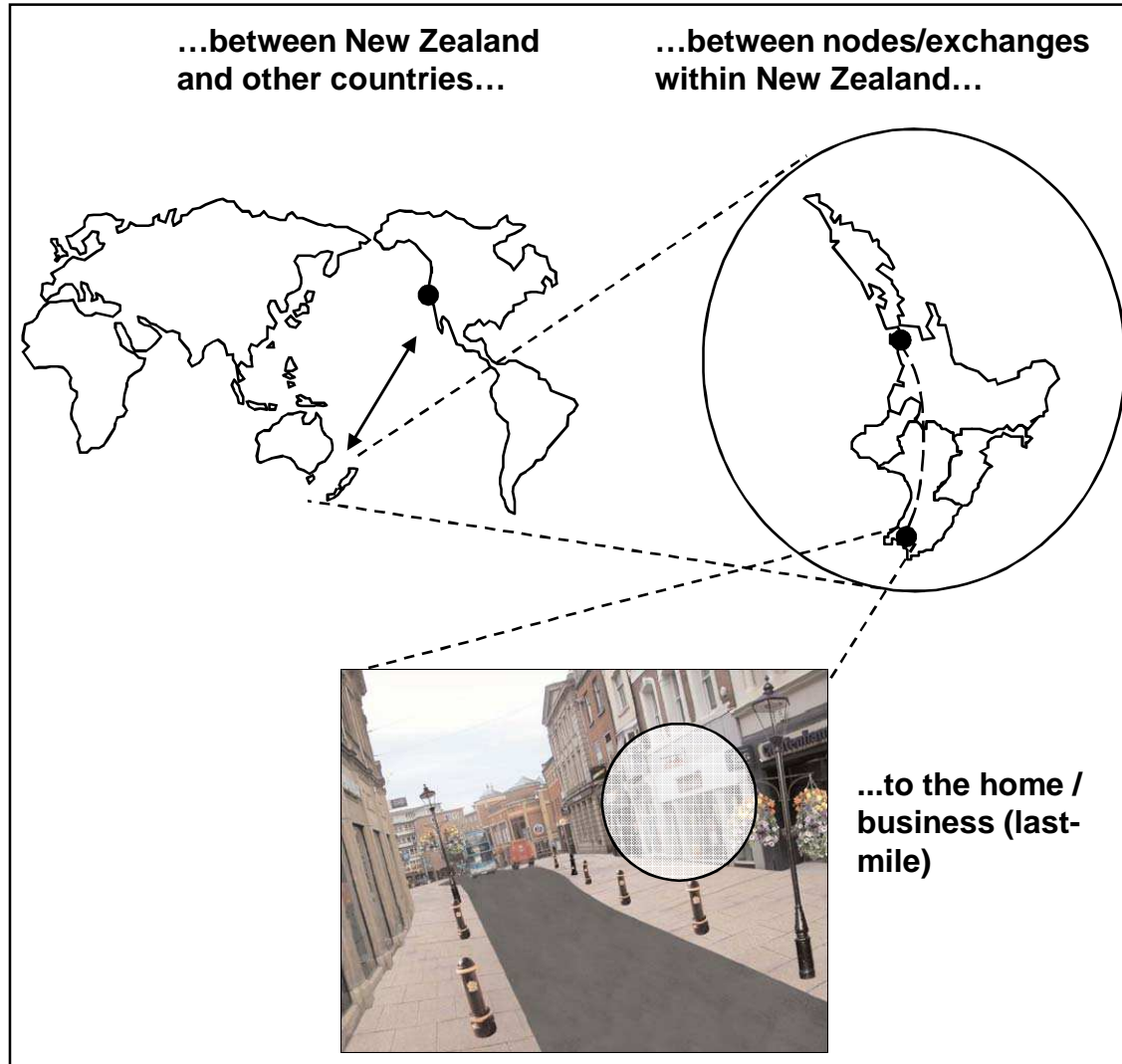
\*\*Left hand side of bar indicates minimum bandwidth.

\*\*\*ADSL2+ is cited as being the next technology step in Telecom's broadband technology evolution.

Source: Internet Industry Association (Australia); CEDA; CitiGroup; Internet Innovation Alliance.

# THE SCOPE OF THIS PROJECT IS MORE THAN THE LAST MILE

## Description of project scope



- The last-mile has been the focus of media attention and government intervention
- To deliver truly world-class communications all components of the network need to be considered



**The New Zealand Institute is examining all component parts of the network**

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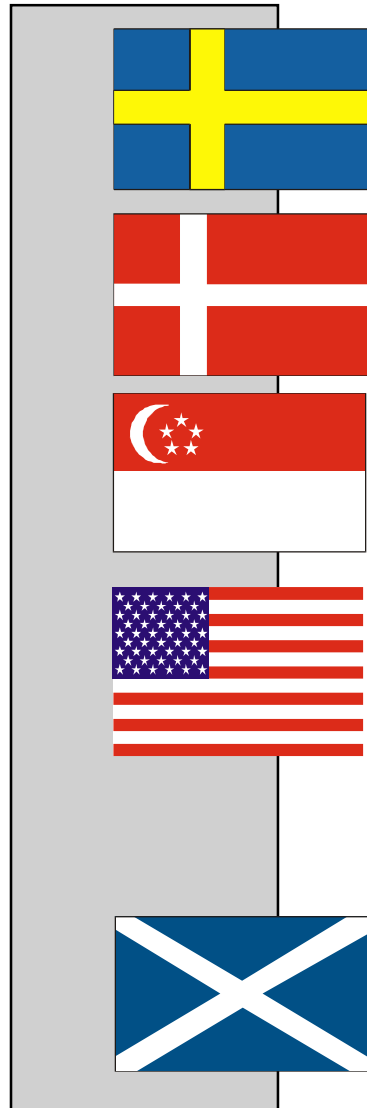
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## A RANGE OF INTERNATIONAL STUDIES SUGGEST THAT BROADBAND GENERATES ECONOMIC BENEFITS

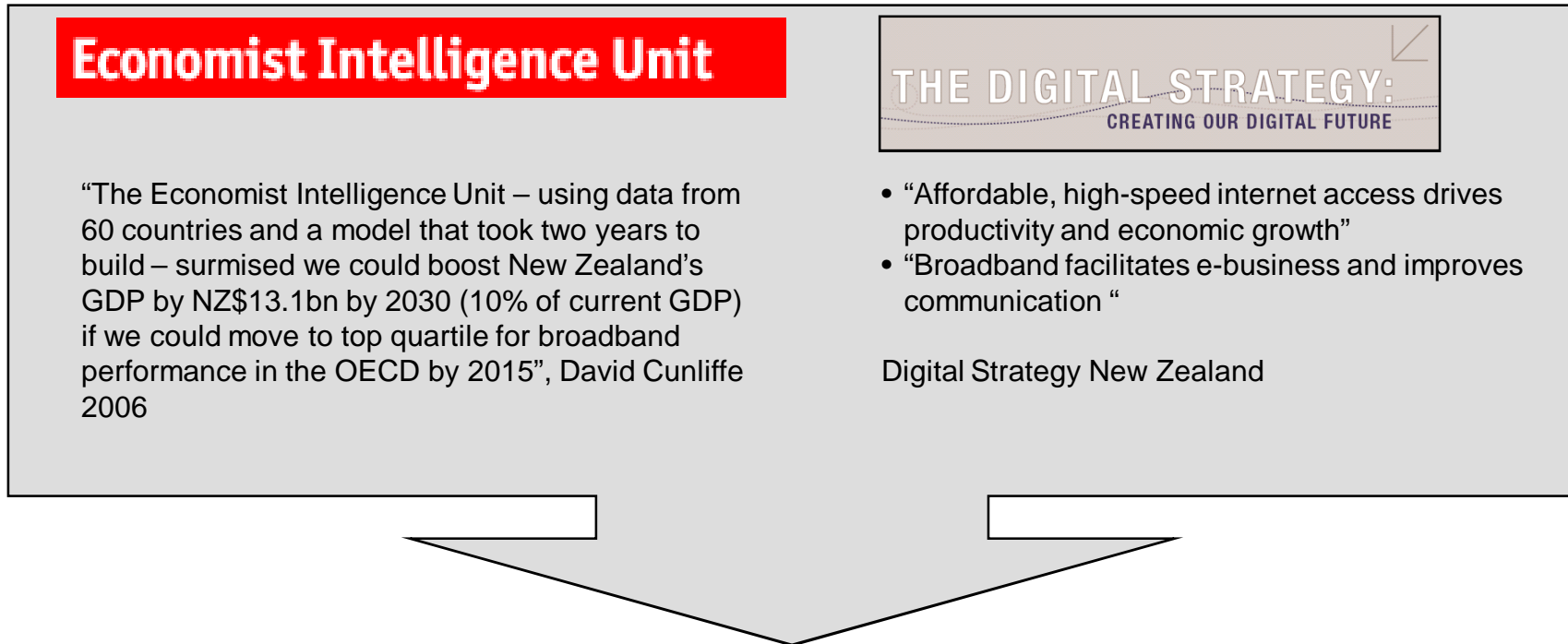


- A Swedish study of businesses shows that those with an internet connection faster than 2 mbps had productivity that was 4% higher than those with lower speeds
- A Danish report shows that e-business oriented firms had 10% higher productivity than companies with more simple technology use
- The Singaporean government believes that by taking a global lead in communications it will create over 80,000 new IT jobs in Singapore inside a decade
- A US study estimates that a nationwide rollout of broadband would create over 1.2 million new jobs both directly and indirectly
- A 2006 MIT study concluded that 'communities in which mass-market broadband was available experienced more rapid growth in employment, the number of businesses overall and businesses in IT intensive areas
- A 2007 report for the Scottish Executive concluded that the Gross Value Added of Scotland's market sector was £2-6bn due to business take-up of broadband than it would have been otherwise

Several countries have identified benefits including:

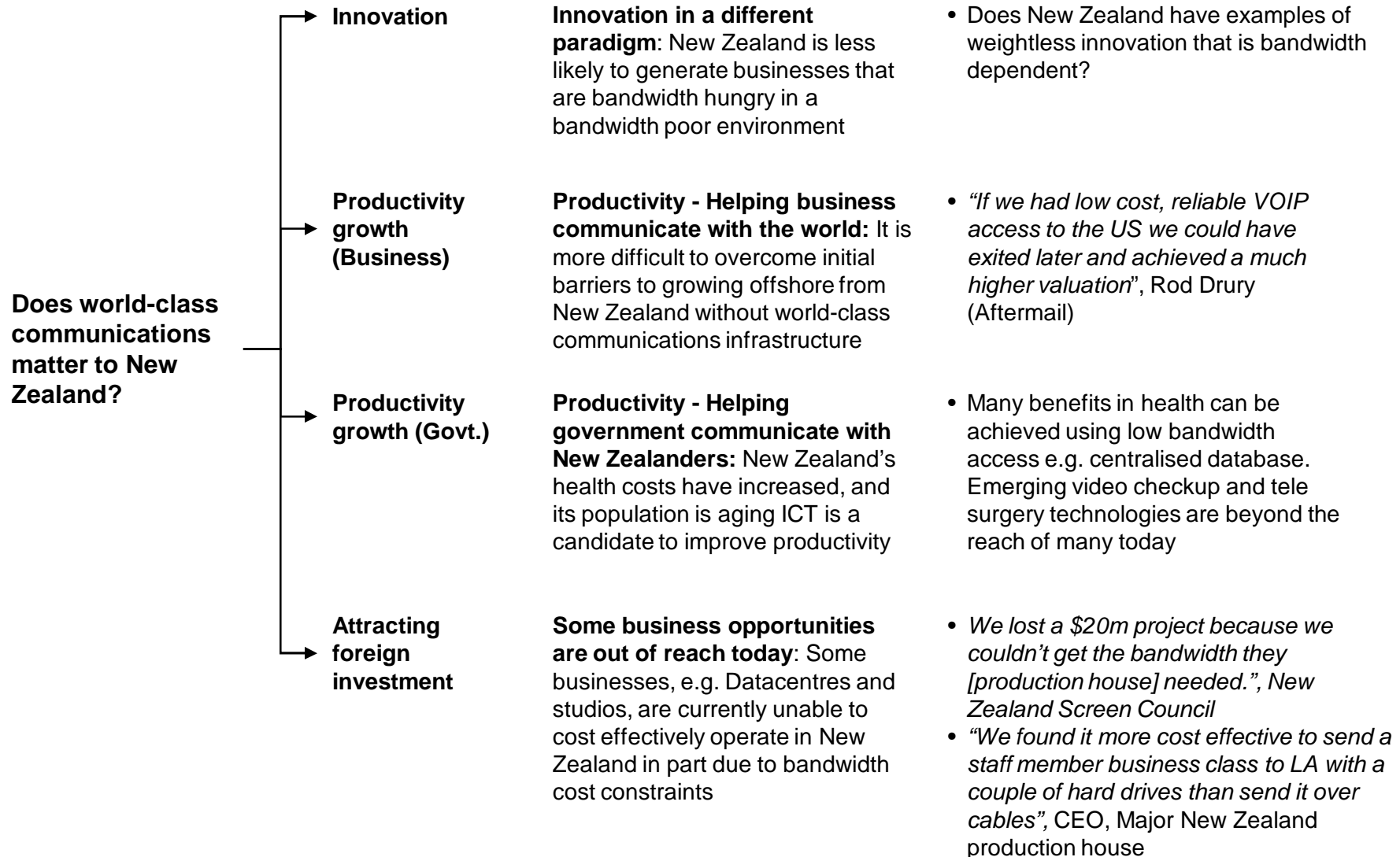
- Productivity improvements of 4-10%
- New job creation of 1-3% of the current workforce as a result of a full broadband rollout

# THERE IS SOME NEW ZEALAND EVIDENCE ALTHOUGH MORE IS REQUIRED

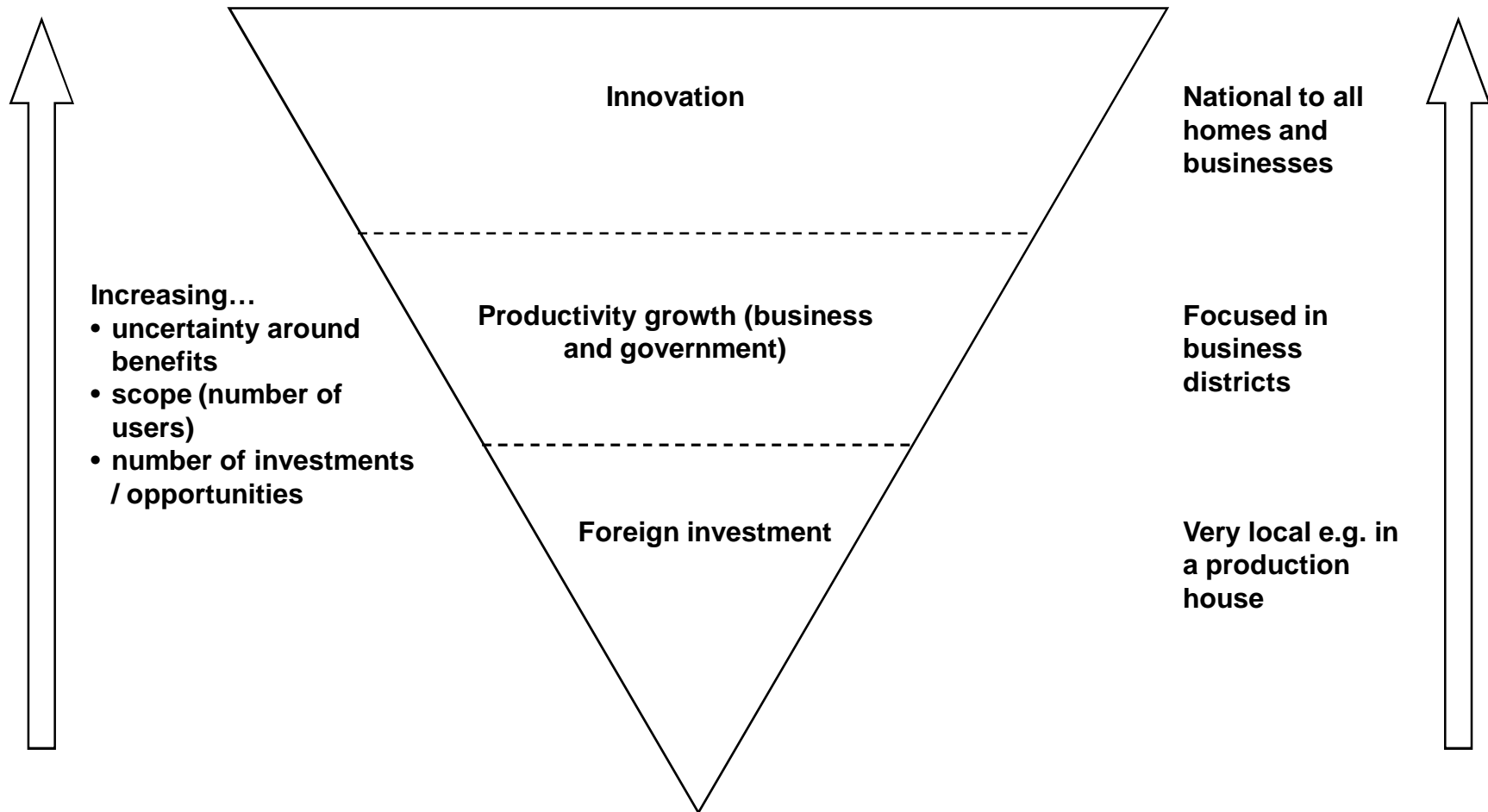


**There is emerging evidence of the benefits of high speed, ubiquitous communications infrastructure in New Zealand. However, we lack more detailed work that gives a sense of where the specific value lies and what the priorities are. The case has not yet been made for ambitious action.**

# WITHOUT LOW-COST, HIGH-QUALITY COMMUNICATIONS SEVERAL TYPES OF BENEFITS WILL BE OUT OF REACH



# THE DIFFERENT BENEFIT GROUPS HAVE DIFFERENT PROFILES AND DIFFERENT REACH REQUIREMENTS



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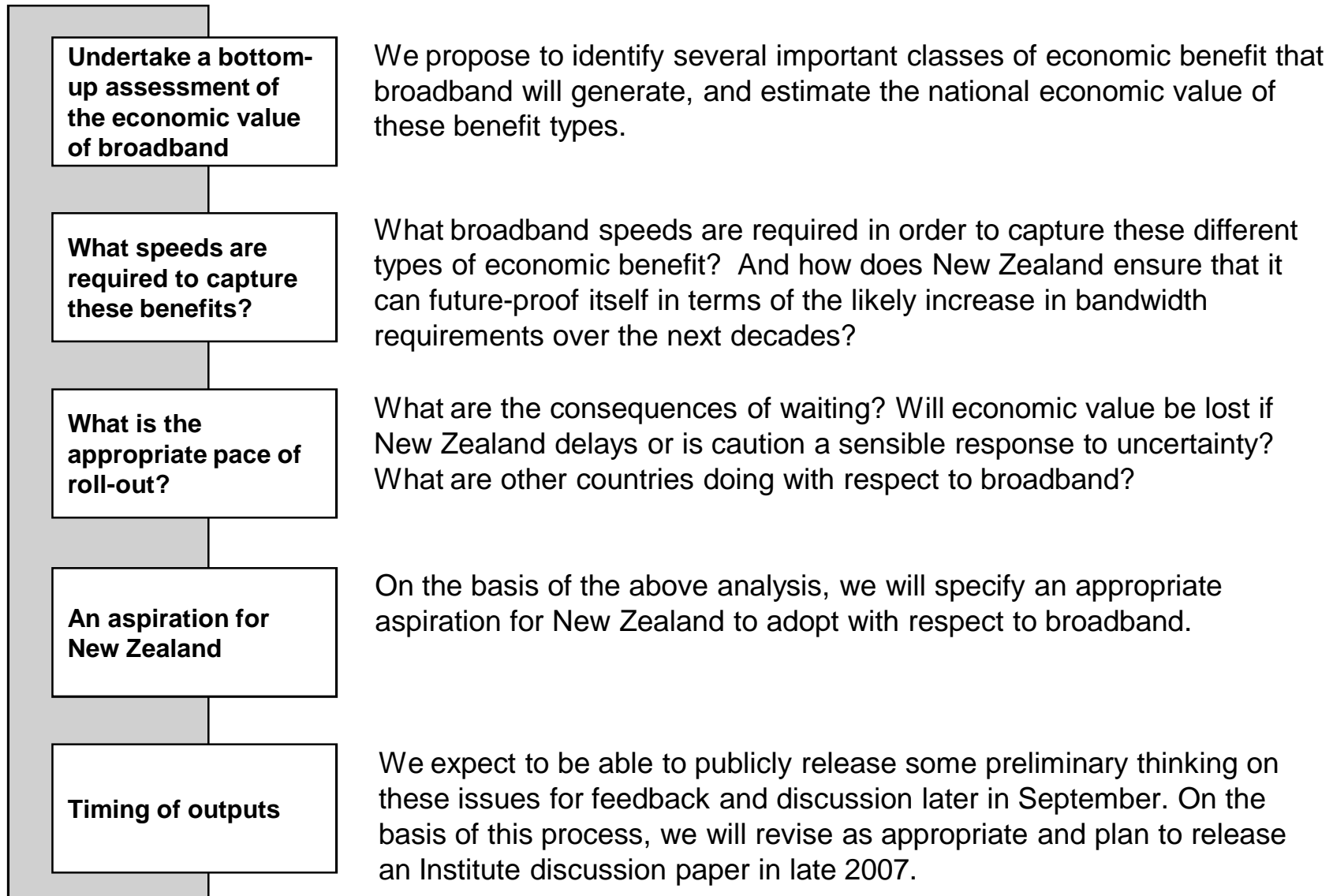
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# THE NEW ZEALAND INSTITUTE WILL UNDERTAKE A TWO PART APPROACH TO ANSWER THE KEY QUESTIONS

	Questions	Outputs
<p><b>Setting the context</b></p> <p><i>(Complete)</i></p>	<p><i>How can New Zealand most effectively compete in global markets?</i></p>	<ul style="list-style-type: none"> <li>• ‘So far yet so close’, New Zealand Institute discussion paper released in March 2007</li> <li>• “Creating a weightless economy: Positioning New Zealand to compete in the global economy”, presentation released in September 2007</li> </ul>
<p><b>Part One:</b></p>	<p>Does world-class communications matter to New Zealand?</p> <p>Do we need to get there sooner rather than later?</p>	<p>Define a national aspiration for broadband</p>
<p><b>Part Two:</b></p>	<p>What sort of technology does this require?</p> <p>How much would it cost?</p> <p>How do we pay for it?</p>	<p>Determine the preferred pathway to achieving this aspiration</p>

## PART 1: DEFINING A NATIONAL ASPIRATION FOR BROADBAND



## PART 2: DETERMINING A PREFERRED PATHWAY TO ACHIEVE THE ASPIRATION

