

# ASSESSING NEW ZEALAND'S CURRENT BROADBAND PATH: THE NEED FOR CHANGE

The New Zealand Institute

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

This document is being released to stimulate discussion. We welcome feedback or comments on the analysis and arguments to [broadband@nzinstitute.org](mailto:broadband@nzinstitute.org)

# EXECUTIVE SUMMARY

**Situation analysis**

- In late 2007, the New Zealand Institute proposed the roll out of fibre-to-the-premises (FTTP) in New Zealand.
- Since this proposal was made, several announcements have been made by industry stakeholders and government. These announcements have included additional investment in fibre infrastructure by several parties and local loop unbundling regulations.
- **This presentation explores the extent to which these announcements represent significant progress towards delivering on the Institute’s proposed aspiration. Is there a need to take further action, or is the current pathway sufficient?**

**Summary of issues**

The New Zealand Institute has identified three important issues that lead us to conclude that the current pathway is insufficient for New Zealand:

- **Progress is too slow:** The announced investments will not take New Zealand far enough fast enough
- **The dominant investor has weak incentives to invest:** Telecom is the only company likely to make significant investments in fibre, but has weak incentives to roll it out rapidly
- **Options are closing off:** Continuing along the current pathway will make it increasingly difficult to achieve the rapid roll out of fibre

**Next steps for New Zealand**

New Zealand faces a strategic choice that must be made soon between:

- the status quo which has New Zealand relying on Telecom for fibre investment
- a more proactive role that involves creating a new regulatory and funding model for more rapid roll out of fibre infrastructure

Our recommendation is that the New Zealand government move rapidly to create a new regulatory and funding model for rapid roll out of fibre infrastructure.

## NEW ZEALAND SHOULD DEVELOP A FAST, EFFICIENT PATH TO FIBRE IN ORDER TO CAPTURE SIGNIFICANT ECONOMIC POTENTIAL

### Summary of findings

The New Zealand Institute has identified national economic benefits from broadband in the range of \$2.7-4.4 billion year with further upside potential possible.

Capturing many of these economic benefits increasingly requires high speeds and so New Zealand's policy focus should shift from encouraging penetration to increasing the speed of the network. This means investing in a fibre network.

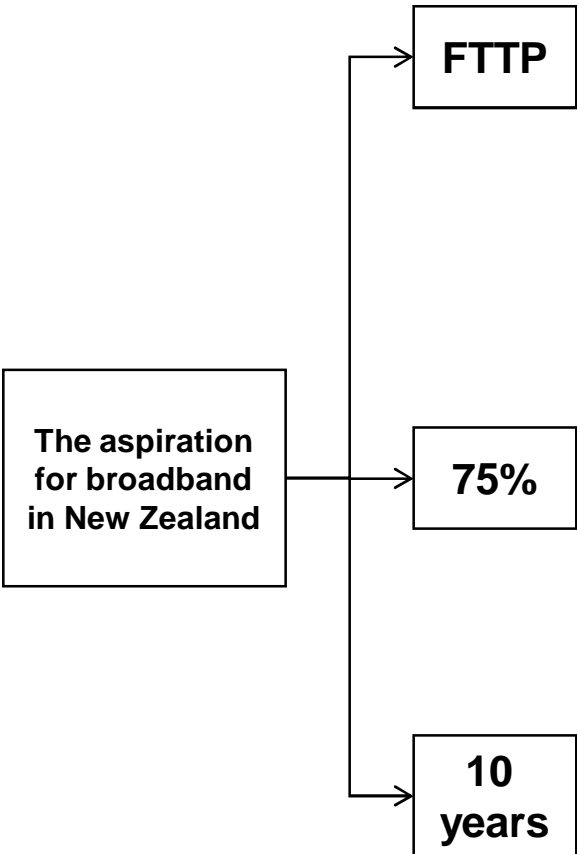
There is a significant cost to waiting. The longer that New Zealand waits, the more economic value it will forego and so New Zealand should approach the investment in fibre with urgency.

### Conclusion

The New Zealand Institute recommends:

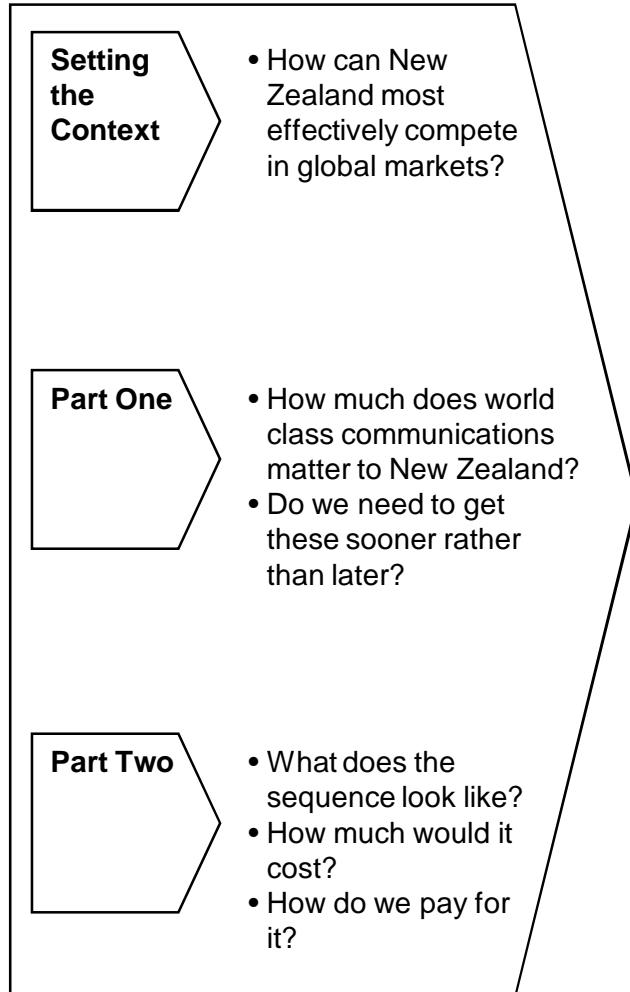
- New Zealand should develop a fast and efficient national path to the rollout of fibre
- The high cost of delay means New Zealand should focus on a path that supports rapid progress in high-value segments from which benefits can be realised rapidly

## WE PROPOSED THE FOLLOWING BROADBAND ASPIRATION FOR NEW ZEALAND

The broadband aspiration	Justification/comments
 <p>The aspiration for broadband in New Zealand</p> <p>FTTP</p>	<p><b>Speed: there is a need for FTTP (fibre to the premises)</b></p> <ul style="list-style-type: none"> <li>• Capturing the economic value requires speeds in excess of those achievable with copper. Fibre has greater capacity than copper, cable, wireless or satellite and is future-proof</li> <li>• The speeds generated by FTTP allow the full potential economic value to be captured</li> <li>• Backhaul and offshore links also need to be upgraded as part of this process</li> </ul>
<p>75%</p>	<p><b>Reach: at least 75% of the population</b></p> <ul style="list-style-type: none"> <li>• A rollout to 75% of the population will reach towns with populations greater than about 20,000</li> <li>• Some parts of New Zealand are disproportionately expensive to serve</li> </ul>
<p>10 years</p>	<p><b>Timing: achieve this within 10 years, by 2018</b></p> <ul style="list-style-type: none"> <li>• This investment in fibre must commence with urgency. The aim should be to front-load the investments so as to capture economic value quickly</li> <li>• New Zealand must move quickly or much of the economic value will be foregone</li> <li>• This full aspiration should be achieved by 2018</li> </ul>

# WE HAVE MODIFIED THE WORKPLAN TO EXPLORE WHETHER RECENT ANNOUNCEMENTS WILL DELIVER ON THE ASPIRATION

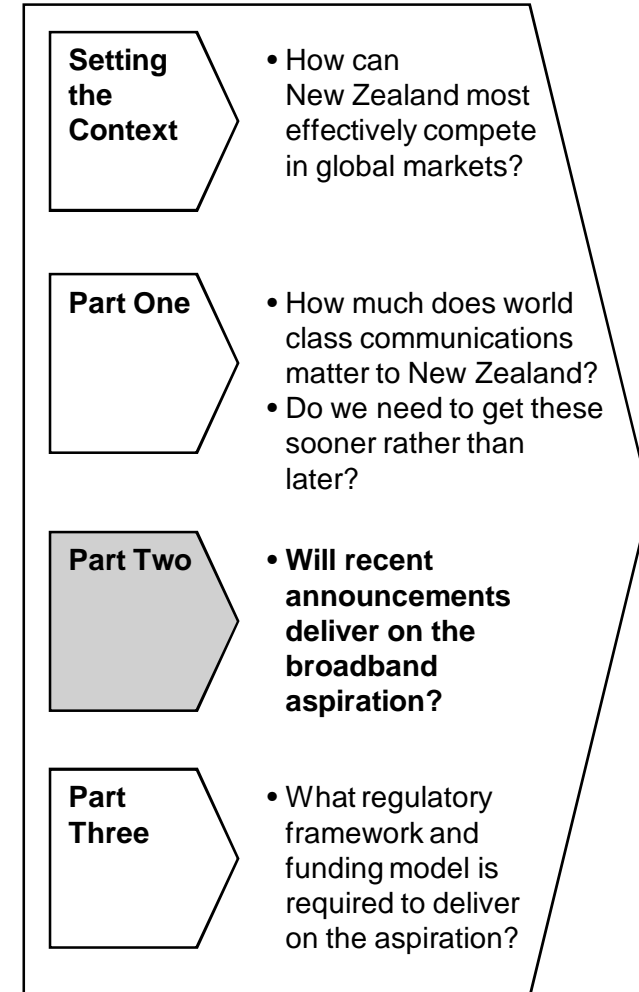
## Original Plan (Q3 '07)



## Announcements (Q4 '07)

- Additional fibre investments
- Local Loop Unbundling (LLU) price determination
- Telecom operational separation

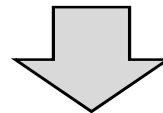
## New Plan (Q1 '08)



## SEVERAL SIGNIFICANT ANNOUNCEMENTS HAVE BEEN MADE OVER THE PAST FEW MONTHS

### Announcement

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• <b>Telecom Investment Announcement (26 October)</b></li> </ul>  | <ul style="list-style-type: none"> <li>• Telecom announces an intention to invest \$1.4 billion in fibre infrastructure over the next four years, laying about 2000km of fibre to about 3,600 cabinets</li> <li>• 80% of premises to have download speeds of 10Mbps by 2012</li> <li>• &gt;40% of premises to have download speeds of 20Mbps by 2012</li> </ul> |
| <ul style="list-style-type: none"> <li>• <b>ULL Price determination (7 November)</b></li> </ul>          | <ul style="list-style-type: none"> <li>• Commerce Commission releases final position on access price for unbundled copper</li> <li>• De-averaging of prices sees different rural and urban prices</li> </ul>  |
| <ul style="list-style-type: none"> <li>• <b>Draft Undertakings (19 December)</b></li> </ul>              | <ul style="list-style-type: none"> <li>• Telecom announces draft, legally binding capital investment undertakings for broadband infrastructure</li> </ul>   |
| <ul style="list-style-type: none"> <li>• <b>Vector / Vodafone collaboration (14 February)</b></li> </ul> | <ul style="list-style-type: none"> <li>• Vector and Vodafone announce a partnership in which Vector provides access to a new fibre link connecting some of Telecom's existing exchanges in Auckland</li> </ul>  |



**Do these announcements represent significant progress towards the proposed aspiration?**

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### Summary of issues

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- **Progress is too slow:** The announced investments will not take New Zealand far enough fast enough
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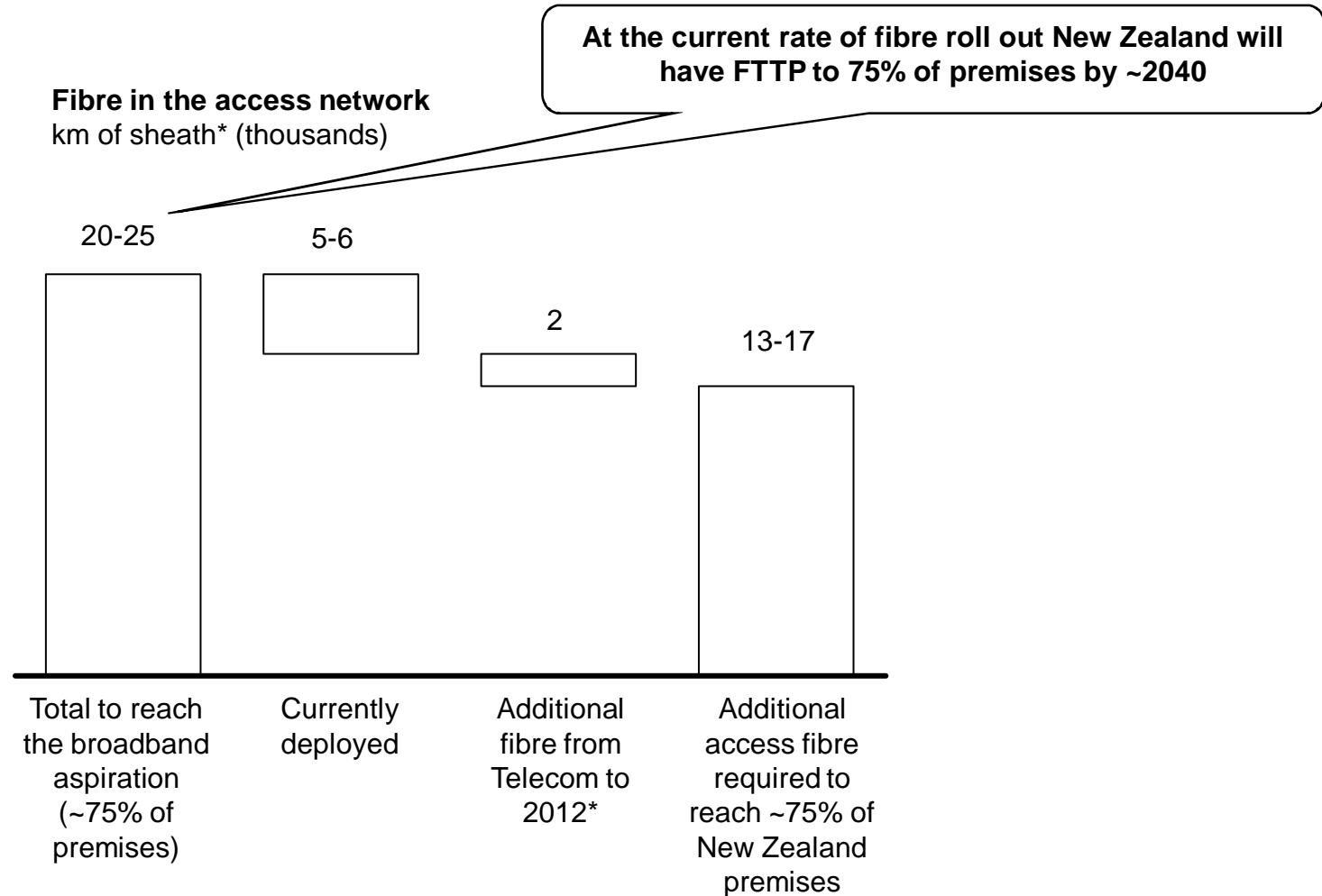
### Next steps for New Zealand

New Zealand faces a strategic choice that must be made soon between:

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# THE ANNOUNCED INVESTMENTS WILL LEAVE NEW ZEALAND A LONG WAY FROM THE BROADBAND ASPIRATION

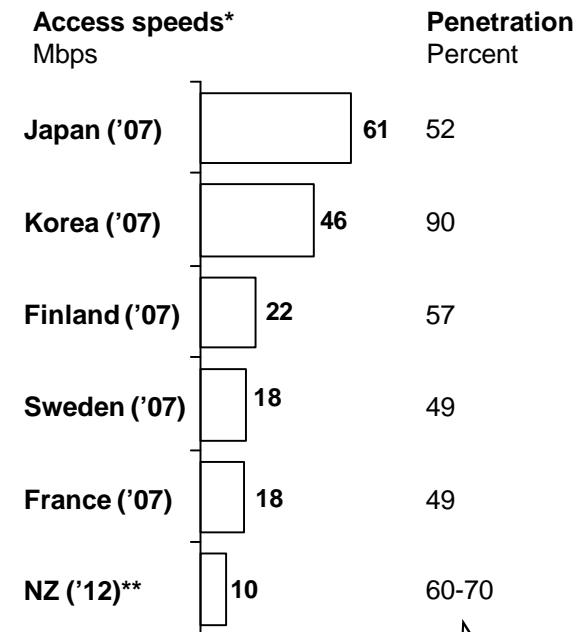


\*Length of sheath with fibre in place. Fibre length deployed per sheath may be one to two orders of magnitude greater due to the use of multiple strands.  
Source: Interviews; Telecom; Azimuth Consulting; The New Zealand Institute analysis.



# NEW ZEALAND'S UPLOAD AND DOWNLOAD SPEEDS IN 2012 WILL BE A LONG WAY FROM WORLD-CLASS

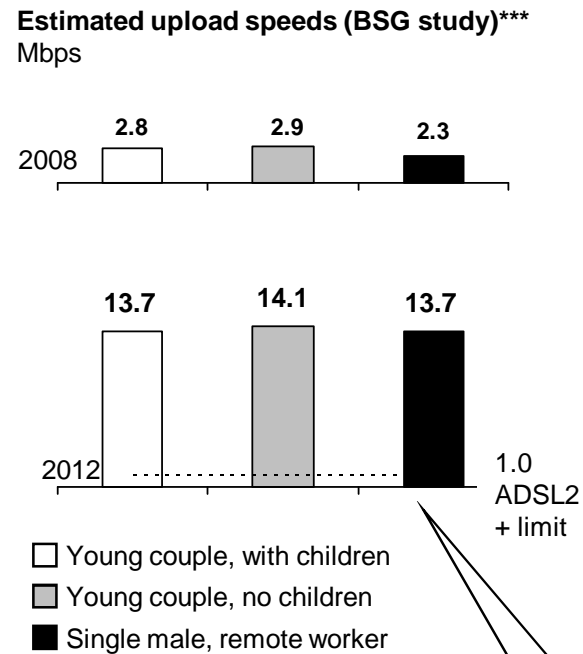
## Speeds will be behind world-class peers even by 2012...



\*Top 5 country's average speeds  
 \*\* Assumes 80% availability at 10Mbps average and 80% uptake

In four years New Zealand will still be behind where leading nations are positioned today

## And upload speeds will be a big constraint

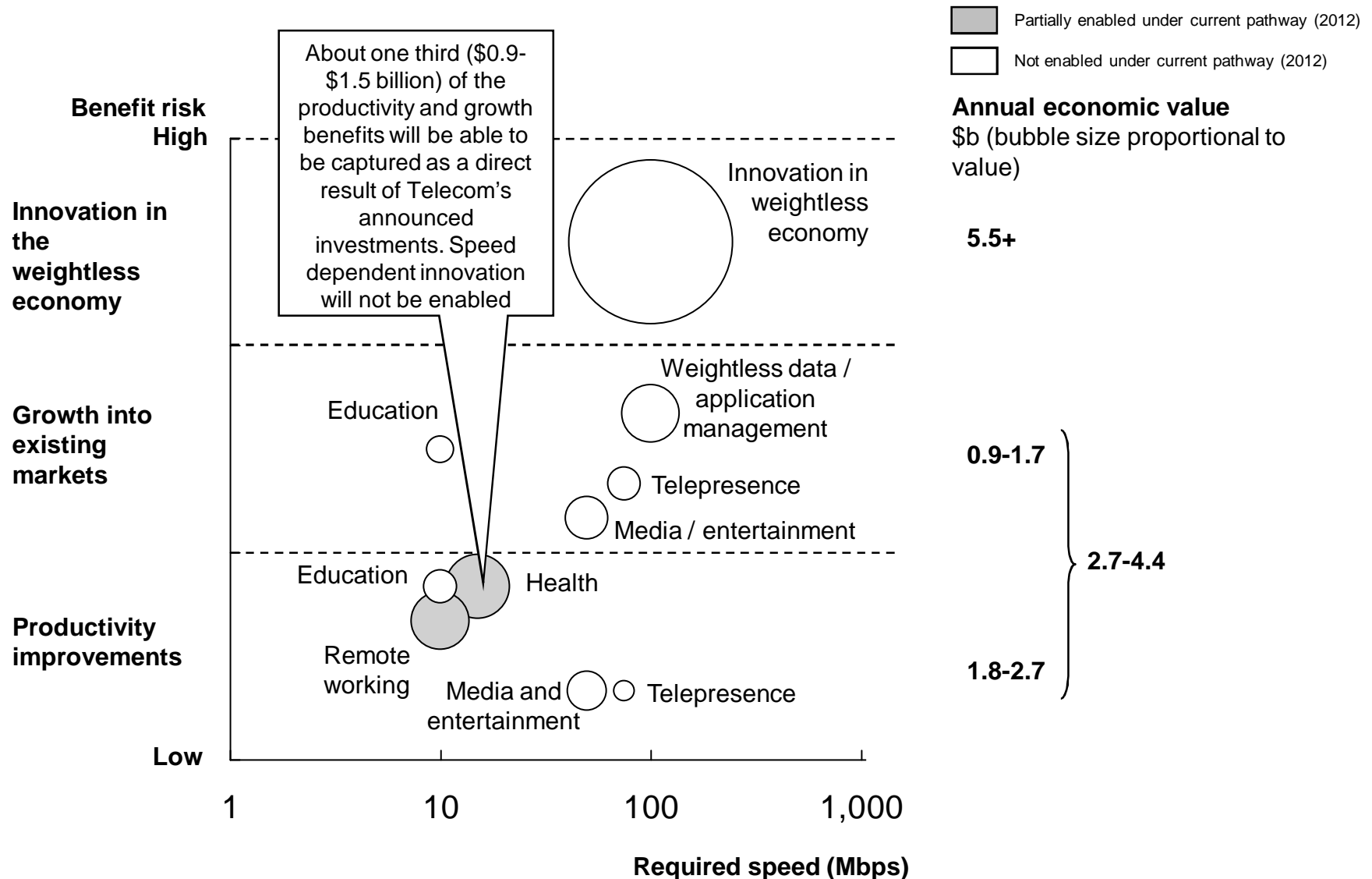


\*\*\*Based on a study into use of broadband when speed is not limited

Upload speeds will become more important

New Zealand's course and speed in fibre roll out is inadequate

# THE ANNOUNCED INVESTMENTS IN FIBRE WILL ONLY ALLOW NZ TO OBTAIN A SMALL PROPORTION OF THE POTENTIAL ECONOMIC GAINS



Source: The New Zealand Institute.

## IN ADDITION, NEW ZEALAND IS DEPENDENT ON TELECOM FOR INVESTMENT IN THE FIBRE ACCESS NETWORK

### Telecom is the dominant fibre investor:

- Telecom is currently the only scale investor with clear large-scale public investment plans in the fibre access network and there is no existing mechanism for third parties to invest in the high cost components (cabling and ducting) of the existing access network
- The lack of regulatory certainty for new entrants, Telecom's commercially rational pricing and infrastructure build responses to competitor investment, together with low capital cost wholesale products, make the emergence of a strong fibre competitor unlikely
- Significant investment by competitors into DSL is also unlikely

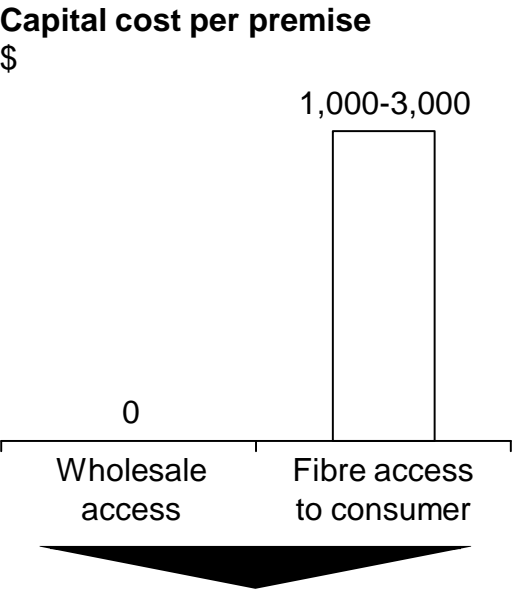
### Telecom faces weak incentives to make significant investments in fibre

- Telco's need to generate higher returns than those provided by infrastructure assets like fibre
- Existence of regulatory risk acts as a disincentive to investment
- Demand is uncertain, and so there is significant option value to waiting to invest – particularly given the absence of other scale investors
- There is capital market resistance to increased investment by Telecom



**Telecom is the dominant fibre investor and is moving as fast or faster than can be expected**

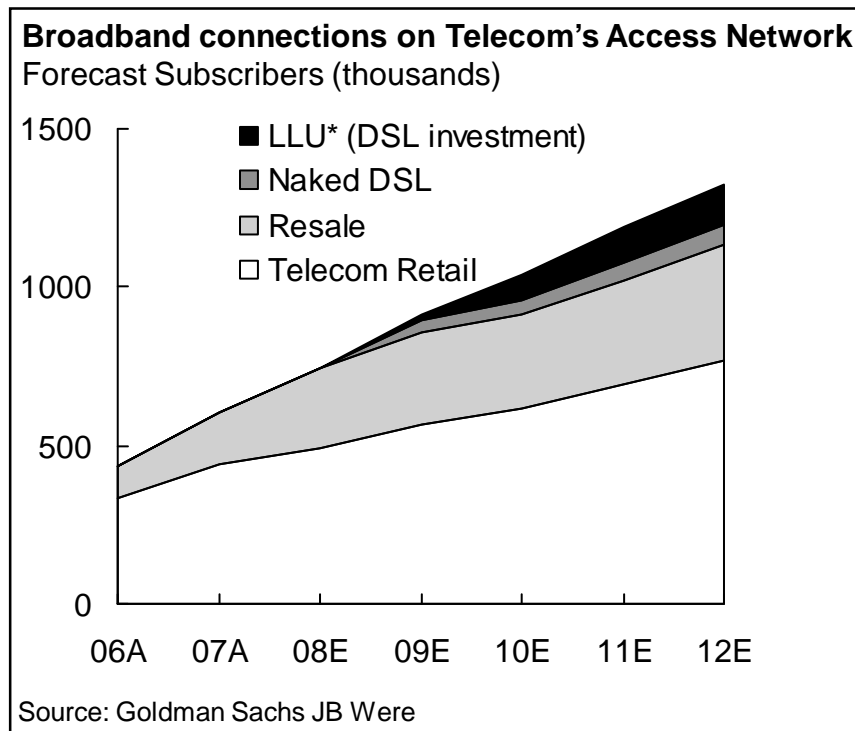
# THE EMERGENCE OF ANOTHER STRONG FIBRE INFRASTRUCTURE INVESTOR IS UNLIKELY

Lack of regulatory certainty makes scale investment risky	Telecom's scale allows it to respond to competition	Competitors can more easily use wholesale products
<p><b>Situation</b></p> <ul style="list-style-type: none"> <li>• There are currently no regulations to manage evolving fibre access monopolies</li> <li>• Scale infrastructure investments have recently been subjected to regulatory intervention e.g. Vodafone</li> </ul> <hr/> <p><b>Implication</b></p> <ul style="list-style-type: none"> <li>• Investors networks may be regulated following build. This reduces the incentive to invest in fibre for both Telecom and other parties.</li> </ul>	<p>Telecom has the ability to respond to investment by competitors in two ways:</p> <ul style="list-style-type: none"> <li>• <b>Overbuild:</b> Telecom is able to respond to competitor network builds on a per-project basis even if overbuild is technically redundant</li> <li>• <b>Price:</b> Where regulation permits Telecom has demonstrated a willingness to price differentially when infrastructure competitors emerge e.g. Telstra Clear's Wellington network</li> </ul>	<p><b>Capital cost per premise</b></p> <p>\$</p>  <p>Wholesale access      Fibre access to consumer</p> <p>0      1,000-3,000</p> <p>Competitors are more likely to resell Telecom's wholesale product given the capital cost and risk of investing</p>

# SIGNIFICANT INVESTMENT BY COMPETITORS IS UNLIKELY, DESPITE LOCAL LOOP UNBUNDLING

Some commentators believe scale third party investment was unlikely before Telecom's recent cabinetisation announcements...

...and others believe that cabinetisation has further reduced the likelihood of investment



- “Telecom New Zealand’s plan to replace ~30% of existing lines reduces the risk of fixed line losses from unbundled local loop in our view”

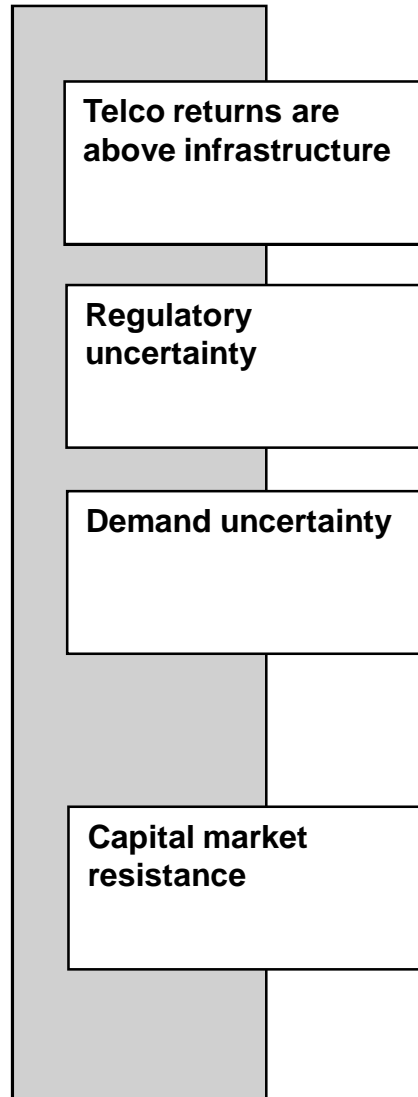
*Morgan Stanley, January 2008*

- “A likely scenario is that Telecom will announce an aggressive cabinetisation plan in the order of 3000-4000 cabinets over the next two years. In this event, investment in the existing copper local loop network, from the exchange to the customer, will be redundant”

*Orcon, November 2007*

\* LLU: Local Loop unbundling.  
Source: Morgan Stanley; Goldman Sachs JB Were; New Zealand Herald.

## AND TELECOM FACES WEAK INCENTIVES TO MAKE SIGNIFICANT INVESTMENTS IN THE FIBRE ACCESS NETWORK



- Telco's need to generate higher returns than those provided by infrastructure assets like fibre
- Telecom is unlikely to invest in a large asset with lower returns that will dilute its return profile
- The existence of significant regulatory risk acts as a disincentive to investment to Telecom, as it does to other investors
- Consumer's current willingness to pay for additional capabilities, products and services is unclear
- The lowest risk approach for Telecom is to wait until demand is proven
- Competitors to Telecom face both demand uncertainty and regulatory uncertainty and strong Telecom response risks
- The characteristics of the fibre network are unattractive to shareholders of listed companies. It is a long life asset with uncertain cash flows for several years.
- Internationally few Telco's invest except under strong competitor pressure

# INTERNATIONALLY, ONLY STRONG COMPETITION OR GOVERNMENT INVOLVEMENT HAVE DRIVEN SCALE DEPLOYMENT OF FTTP

		Description	Present in New Zealand?	
Scale investments	National government investments	<ul style="list-style-type: none"> <li>• Japan</li> <li>• South Korea</li> <li>• Singapore</li> </ul>	<ul style="list-style-type: none"> <li>• Significant (multi billion) investments into network either directly or as part of a consortium</li> <li>• Driven by belief that high bandwidth provides national competitive advantage</li> </ul>	x
	Competition	<ul style="list-style-type: none"> <li>• USA, Europe</li> </ul>	<ul style="list-style-type: none"> <li>• Occurs when the cost of inaction is greater than the cost of action even though both are value negative</li> <li>• Typically driven by strong cable TV companies</li> </ul>	x
Localised investments	Fortuitous access to low cost infrastructure	<ul style="list-style-type: none"> <li>• Paris</li> </ul>	<ul style="list-style-type: none"> <li>• Existing infrastructure can be used to reduce deployment costing e.g. sewers in Paris</li> <li>• Some suitable existing infrastructure in New Zealand</li> </ul>	Selected local examples
	Local initiatives	<ul style="list-style-type: none"> <li>• Burlington, USA</li> <li>• Vasteras, Sweden</li> <li>• Dannevirke, New Zealand</li> </ul>	<ul style="list-style-type: none"> <li>• Local groups (often led by councils) have formed together to deploy on small scale</li> <li>• Some pockets emerging in New Zealand</li> </ul>	✓

## ALLOWING THE STATUS QUO TO CONTINUE PRECLUDES SEVERAL OPTIONS FOR NEW ZEALAND

	<u>Why is it precluded?</u>	<u>Implications</u>
<b>Option to create a regulated environment for a natural monopoly</b>	<ul style="list-style-type: none"> <li>• Currently only one significant investor (Telecom)</li> <li>• Much more difficult to regulate once multiple investors have invested in fibre and xDSL even if magnitude of investment is small</li> </ul>	<ul style="list-style-type: none"> <li>• Regulation will be significantly more difficult for government in years to come</li> <li>• Multiple geographic monopolies may require government intervention to unlock monopoly pricing</li> </ul>
<b>Option to use higher value consumers to fund lower value consumers</b>	<ul style="list-style-type: none"> <li>• Higher value consumers will be captured by contested DSL and fibre services</li> <li>• Only unprofitable consumers will remain</li> </ul>	<ul style="list-style-type: none"> <li>• Government forced to fund all marginal connections</li> </ul>
<b>Option to capture a stake in growth markets as well as current economic benefits</b>	<ul style="list-style-type: none"> <li>• New Zealand is much less likely to develop strengths in new and emerging types of economic activity globally</li> </ul>	<ul style="list-style-type: none"> <li>• Failure to capture maximum available GDP growth</li> </ul>

**There is a need to move now rather than wait for a few more years to act**



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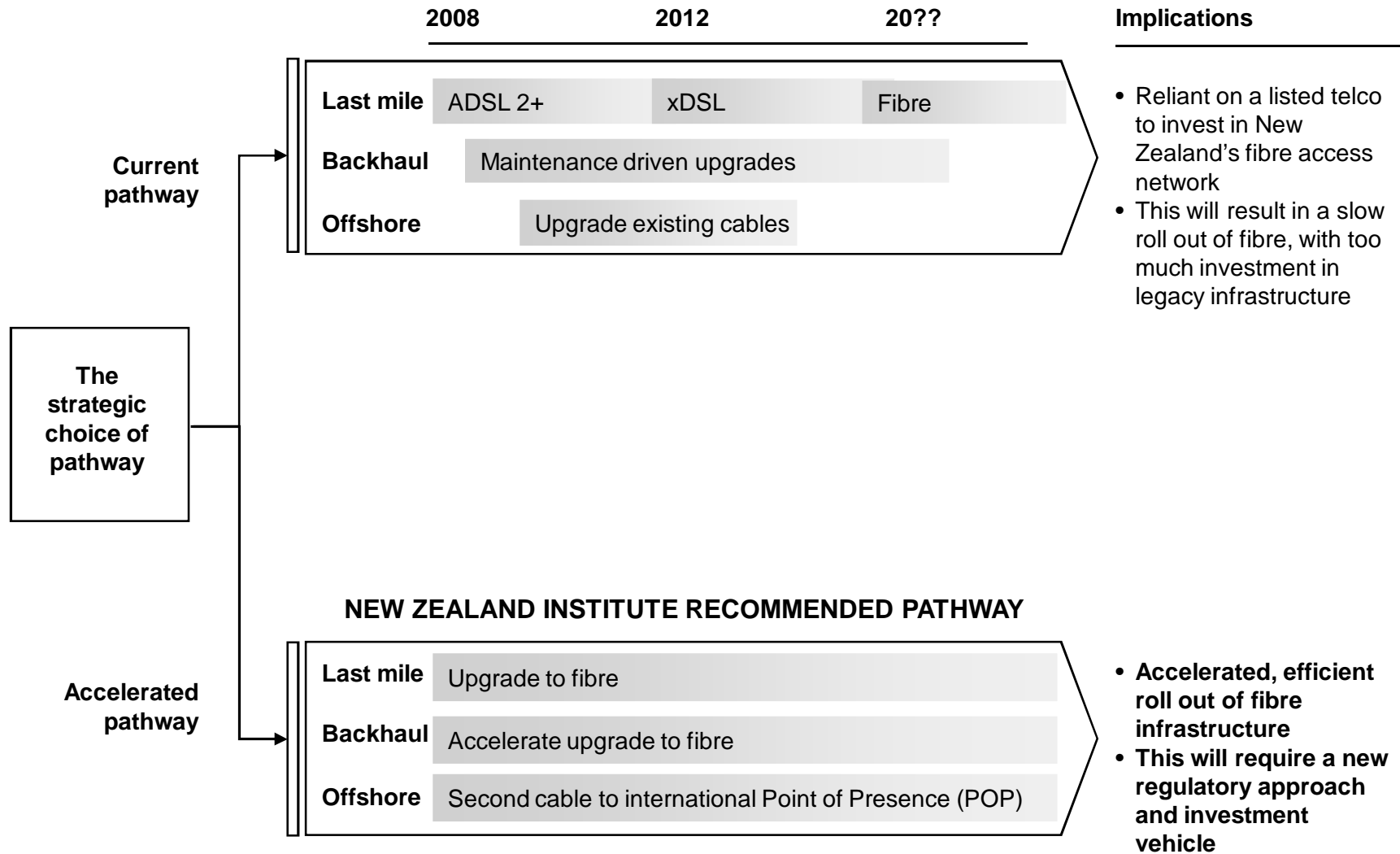
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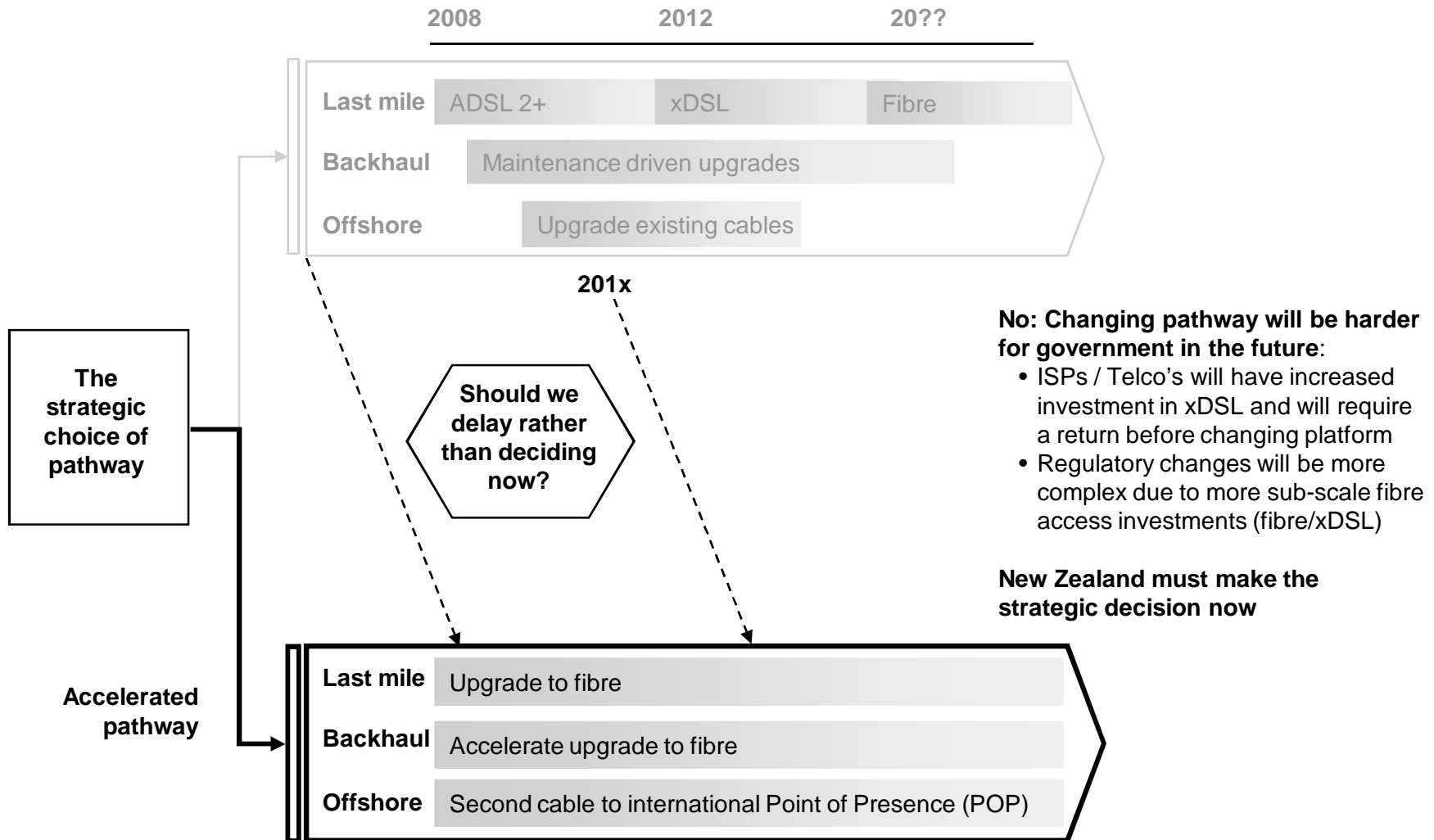
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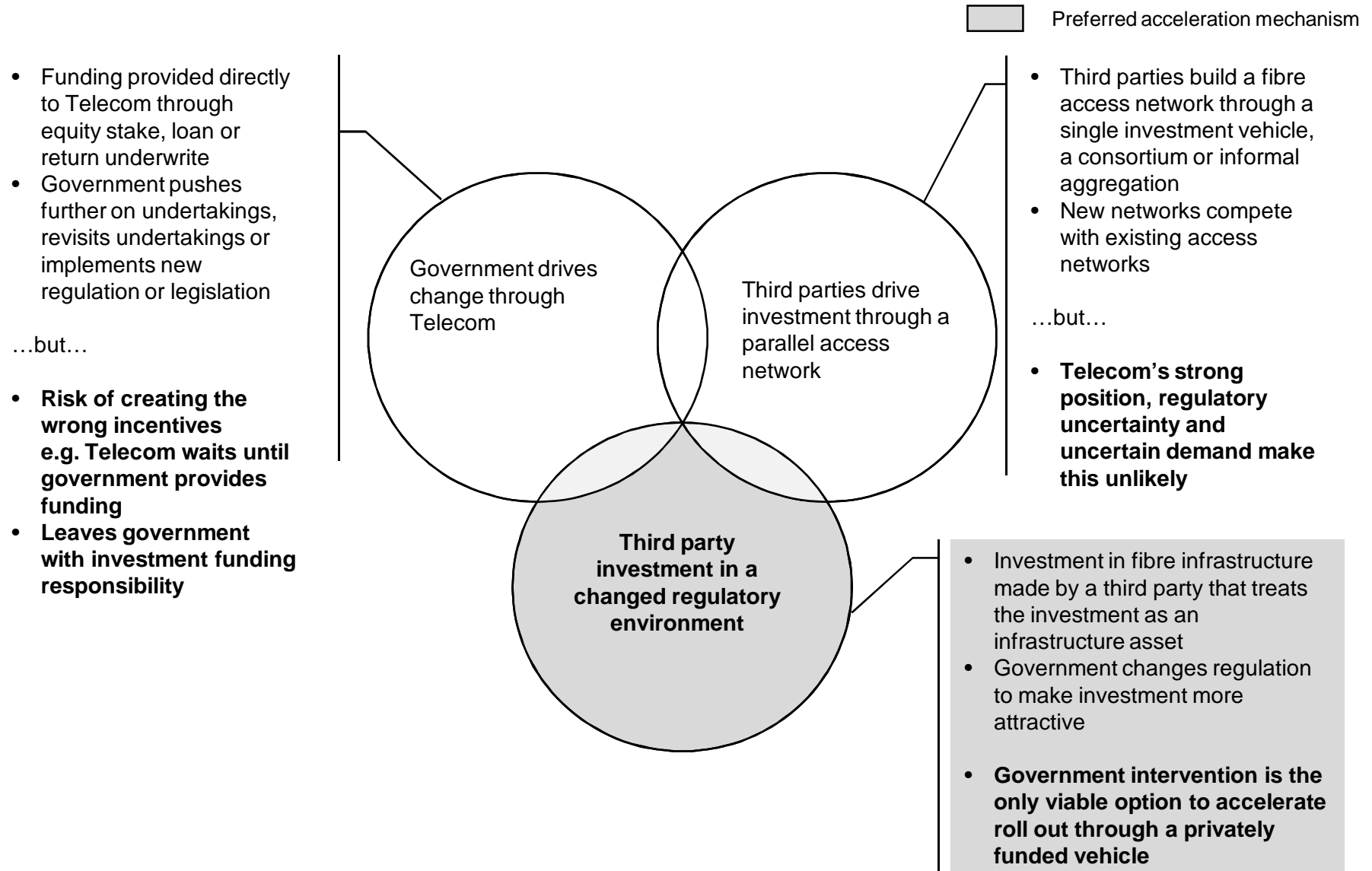
# NEW ZEALAND SHOULD MAKE A STRATEGIC CHOICE TO SHIFT INVESTMENT FROM COPPER TECHNOLOGY TO A FIBRE NETWORK



# FAILURE TO ACT NOW WILL CONSTRAIN NEW ZEALAND TO A SLOW PATH TO FTTP, AND WILL FOREGO SIGNIFICANT ECONOMIC VALUE



# TO ACCELERATE ROLL OUT OF FIBRE BEYOND THE CURRENT PLAN WILL REQUIRE A NEW MODEL



## NEXT STEPS FOR THE NEW ZEALAND INSTITUTE: DEVELOP A ROBUST PATHWAY TO ACHIEVE THE ASPIRATION

**What is an acceptable accelerated pathway?**

- What is required to create incentives for private investors to invest significantly in fibre infrastructure, such that New Zealand captures more of the potential economic benefits?
- How can the existing constraints on investment be overcome?
- What is the role of the government in creating a regulatory environment that is conducive to this investment?
- What investment vehicle needs to be built?

**Where do we start?**

- Given the urgency of the need to move from the current pathway to an accelerated pathway, what specific steps should be taken over the next 12 months to commence the transition process?