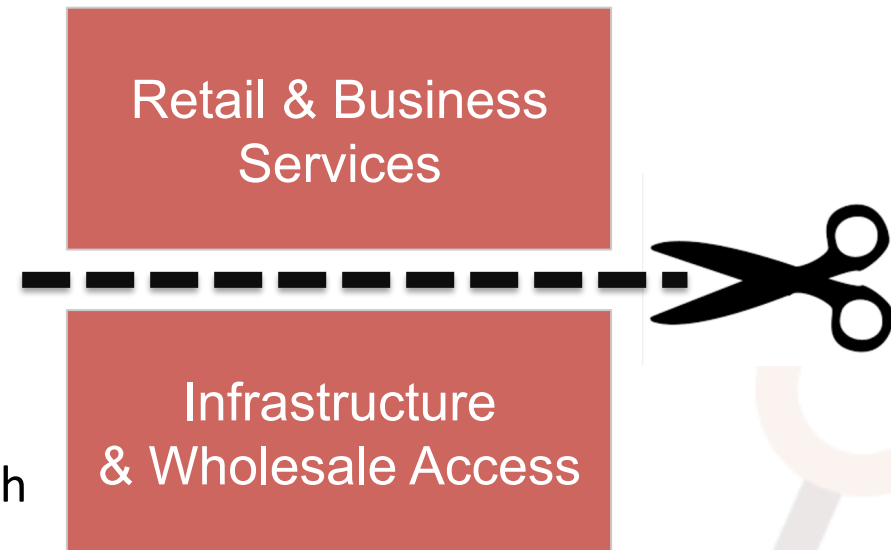


Structural Separation: Lessons from New Zealand

Benoît Felten, CEO
benoit@diffractionanalysis.com

Let's define Structural Separation

- Structural Separation is often meant to imply that the incumbent operator is **split in half**, with the infrastructure and wholesale access on one side and the retail and business services on the other.
- The key notion here is not that they be separate entities, but that they be **legally independant entities**.
- In other words, structural separation implies that whoever provides the infrastructure has **no capitalistic ties** with whoever provides services.
- This also means that in a market in which an independant third party infrastructure wholesaler deploys the infrastructure for the retail market to use, the **same outcomes** would be achieved.



Expected Outcomes of Structural Separation

Level Playing Field

Eliminate unfair advantages incumbents get from both owning and reselling infrastructure.

Retail & Business Services

Shareholder Value

Maximize shareholder value by offering focused companies to the financial markets.

Future Proof & National Infrastructure

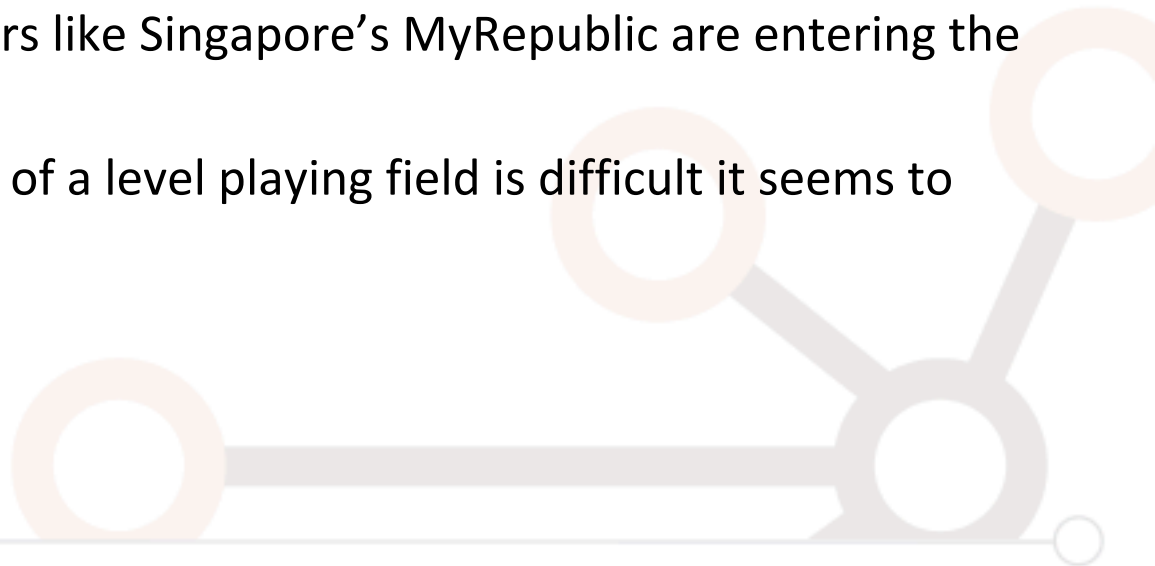
Allow/Push NetCo to invest for the long term.

New Zealand Structural Separation: Key Facts

- In 2009 the NZ government initiated an Ultra Fast Broadband (UFB) plan to accelerate deployment of FTTH which incumbent Telecom NZ argued was unnecessary.
- The plan involved government investment in FTTH deployment (the carrot) and enforced structural separation required to get the funding (the stick).
- This led to incumbent Telecom NZ undertaking voluntary separation after winning a bid for 24 of the 33 regions. In other regions, Chorus (the network entity) competes with other Local Fiber Companies.
- Telecom NZ became Chorus (Network Wholesaler) and Spark (Services) in 2011.
- Since 2011, FTTH coverage and adoption have soared, both companies have increased shareholder value.

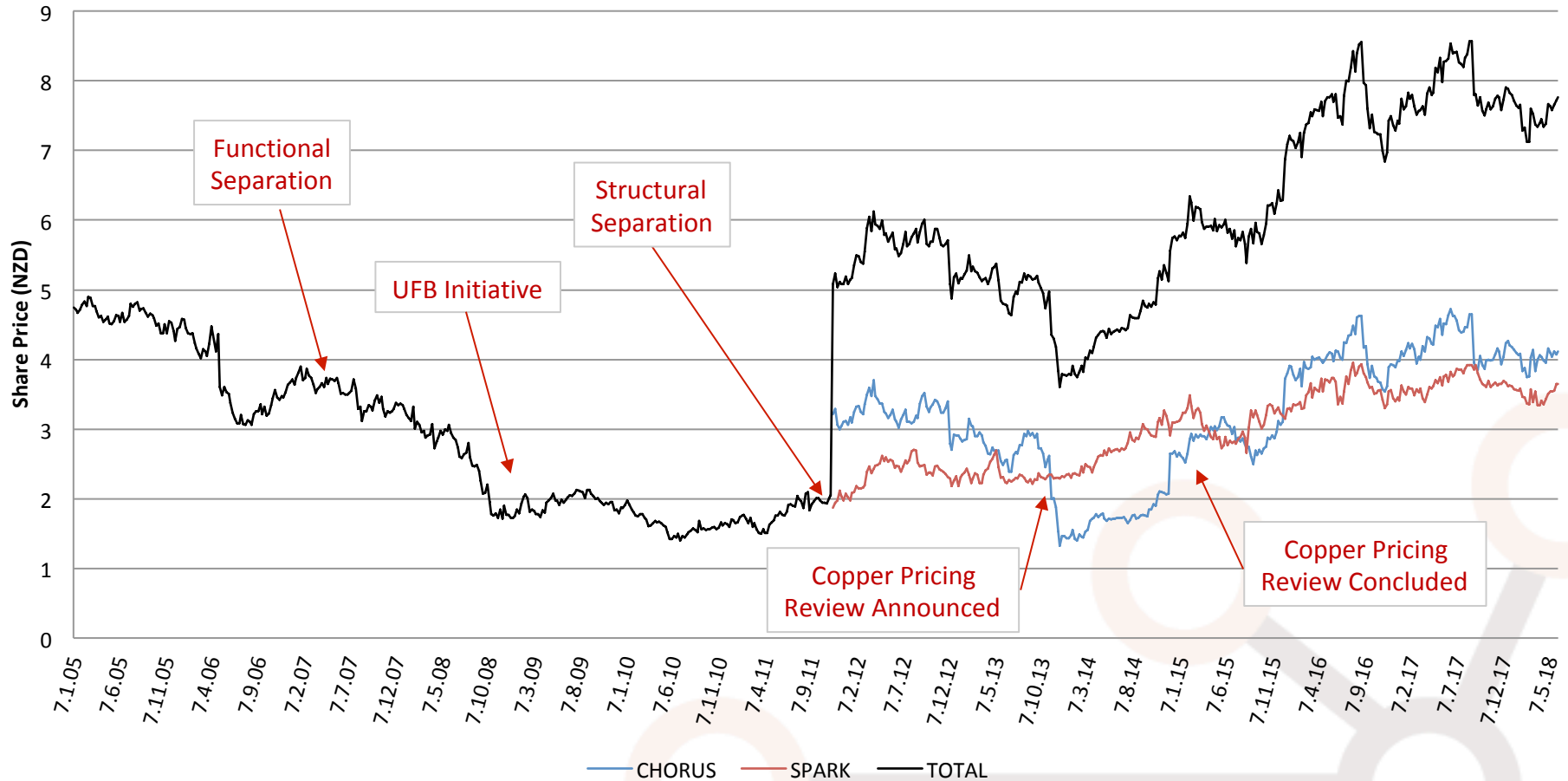
NZ Example: Level Playing Field

- In 2011 Telecom NZ had 49% market share of internet connections. In 2017 Spark had 44% market share (Source: ComCom)
- Vodafone and TelstraClear merged in 2012 creating a strong second national player.
- Orcon and CallPlus merged in 2014, creating a larger third national player.
- New entrants like Trustpower (electricity + broadband) and 2Degrees (3rd mobile operator) are gaining market share.
- Even smaller disruptive players like Singapore's MyRepublic are entering the market.
- Even if measuring the impact of a level playing field is difficult it seems to have stimulated competition.



NZ Example: Shareholder Value

Comparative Share Price of Telecom, Chorus and Spark

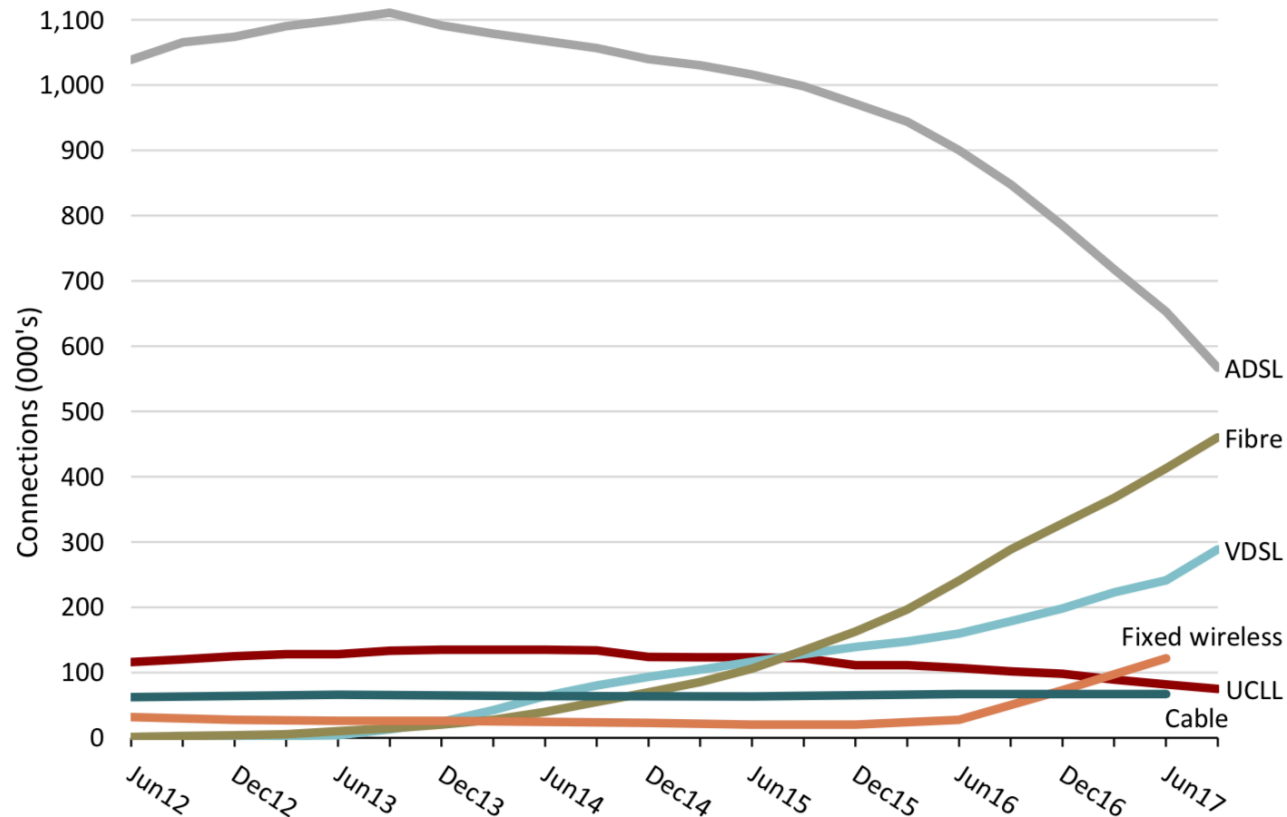


NZ Example: Shareholder Value

- Combined Shareholder Value is 4 times higher than at separation.
- Combined Shareholder Value is nearly twice what it was at the highest point in the history of Telecom NZ.
- Both Chorus' and Spark's Share Value have increased and are increasing.
- Share Value increased for both entities immediately at the point of separation (meaning the separation itself was a good financial deal for shareholders).
- Chorus lost Share Value when the copper pricing review was announced and regained lost value when it was concluded, leading to evolutions in the regulatory framework.
- Shareholder structure is very different between the two entities. Chorus has mostly infrastructure funds and pension funds as shareholders whereas Spark has more traditional telecom investors.

NZ Example: Nation Building, FTTH vs ADSL

Figure 4: Fixed broadband connections by technology



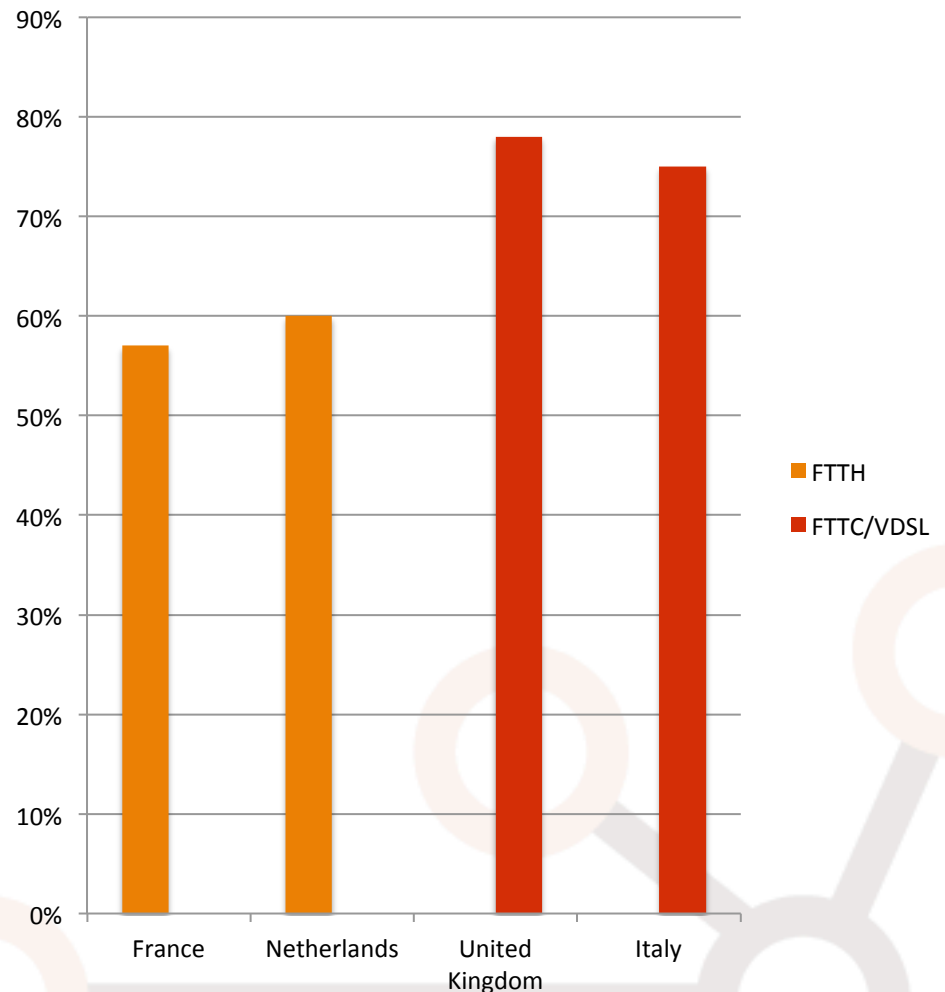
Source: Chorus, MBIE, annual telecommunications questionnaire

NZ Example: Nation Building, FTTH Coverage

- From no FTTH in 2011, New Zealand went to 1.13m homes and businesses passed end of 2017.
- The government plan to cover 75% of the population by 2022 is $\frac{3}{4}$ done and 4% ahead of schedule.
- Demand for FTTH is very high with 33% uptake to date. Uptake of 20-30% within the first few months is now usual.
- The NZ government invests in the core FTTH program, allowing the government entity managing that investment (Crown Fiber Holdings) to reinvest funds allocated to successful areas.
- Only the 25% rural are properly subsidised. Early subsidies went to Fixed Wireless solutions, but increasingly is going to FTTH as well.

How are things playing out elsewhere?

- In most Western European markets, some amount of NGA broadband is being deployed by incumbents.
- FTTC/VDSL deployment leads to comparatively higher coverage than FTTH.
- In either case though, coverage of NGA rarely exceeds 70% of population.
- The choice for coverage beyond 70% is between increasingly expensive subsidies and nothing.



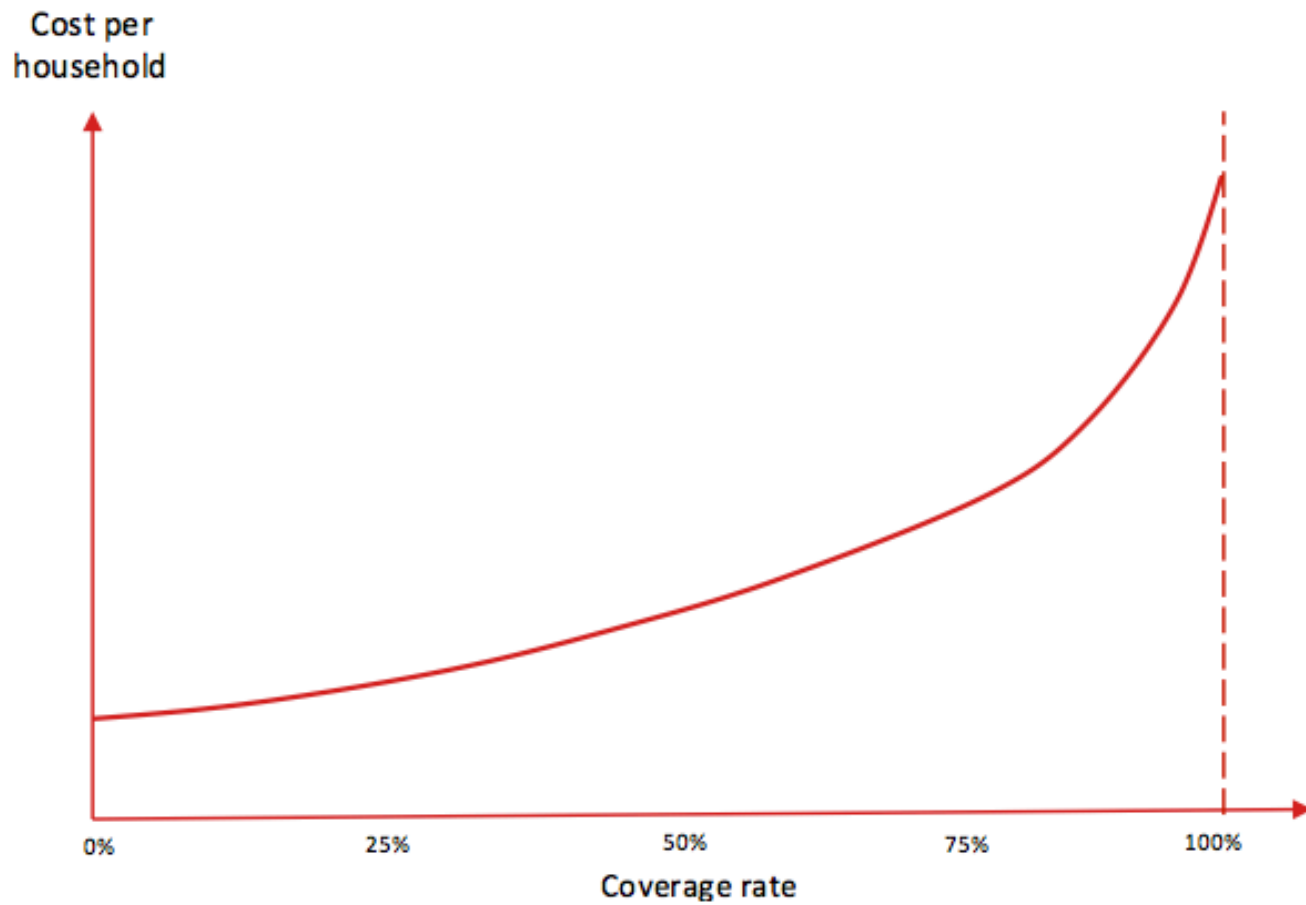
Is FTTC/VDSL « good enough »?

- FTTC/VDSL tends to deliver **better short term outcomes** because it's faster to deploy. That is why UK average speeds are still better than French average speeds in international benchmarks.
- However, it is a **short term solution** as countries deploying fiber deliver way better outcomes in terms of speeds in longer term horizons. At 10 year horizon, all Telco CTOs agree they need FTTH.
- Furthermore the upgrade path from FTTC/VDSL to either full FTTH or comparable G.Fast performance is **more expensive than FTTH**.
- Finally, copper enhancement delivers a network where individual customer service levels cannot be anticipated. Not being able to anticipate network performance makes it harder to build new services that require quality of service guarantees (home security, healthcare, etc.)

Fiber to the Home is ***Not*** Expensive

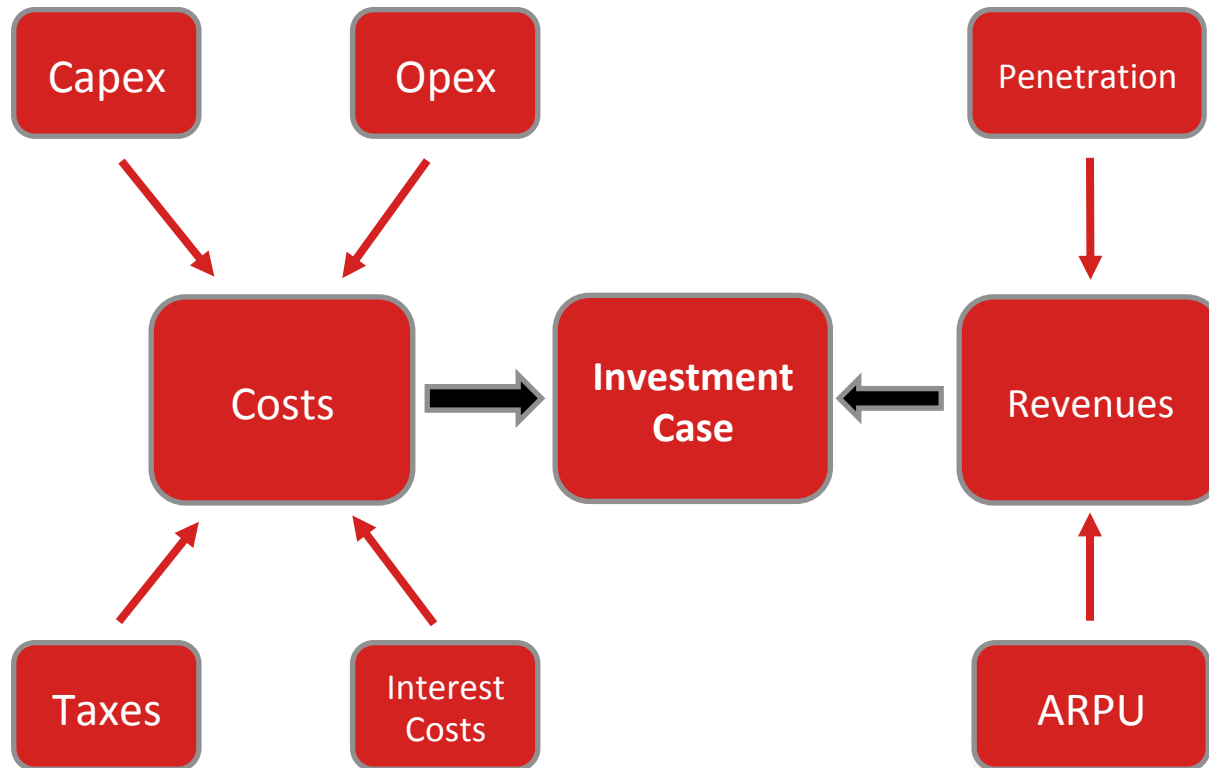
- The issue with the FTTH investment case is not its cost.
- The core issue is the disconnect between infrastructure investment and market structure.
- Telcos have investors who expect 3-5 year returns, which is unsuitable for infrastructure investment.
- Gap funding has not made an otherwise impossible investment case possible. In most cases, it's made an infrastructure investment case achievable by a telco. Not the best use of public money.
- Meanwhile infrastructure investment funds are looking for projects to finance and struggling to find enough. Patient money wants predictable, steady returns and long-term perspectives.

The cost slope



Source: Diffraction Analysis

Modeling Greenfield FTTH Business Case



- What is the intrinsic FTTH coverage capability of a **Vertically Integrated Operator (VIO)** vs a **Wholesale Network Operator**

Calculating the Coverage Frontier

1

Cost Model

Establishes the average cost per home connected segmented per clusters of 5% population.

2

VIO Profitability Model

Based on cost to connect input and VIO business model, establishes the revenue and profitability per cluster.

WNO Profitability Model

Based on cost to connect input and WNO business model, establishes the revenue and profitability per cluster.

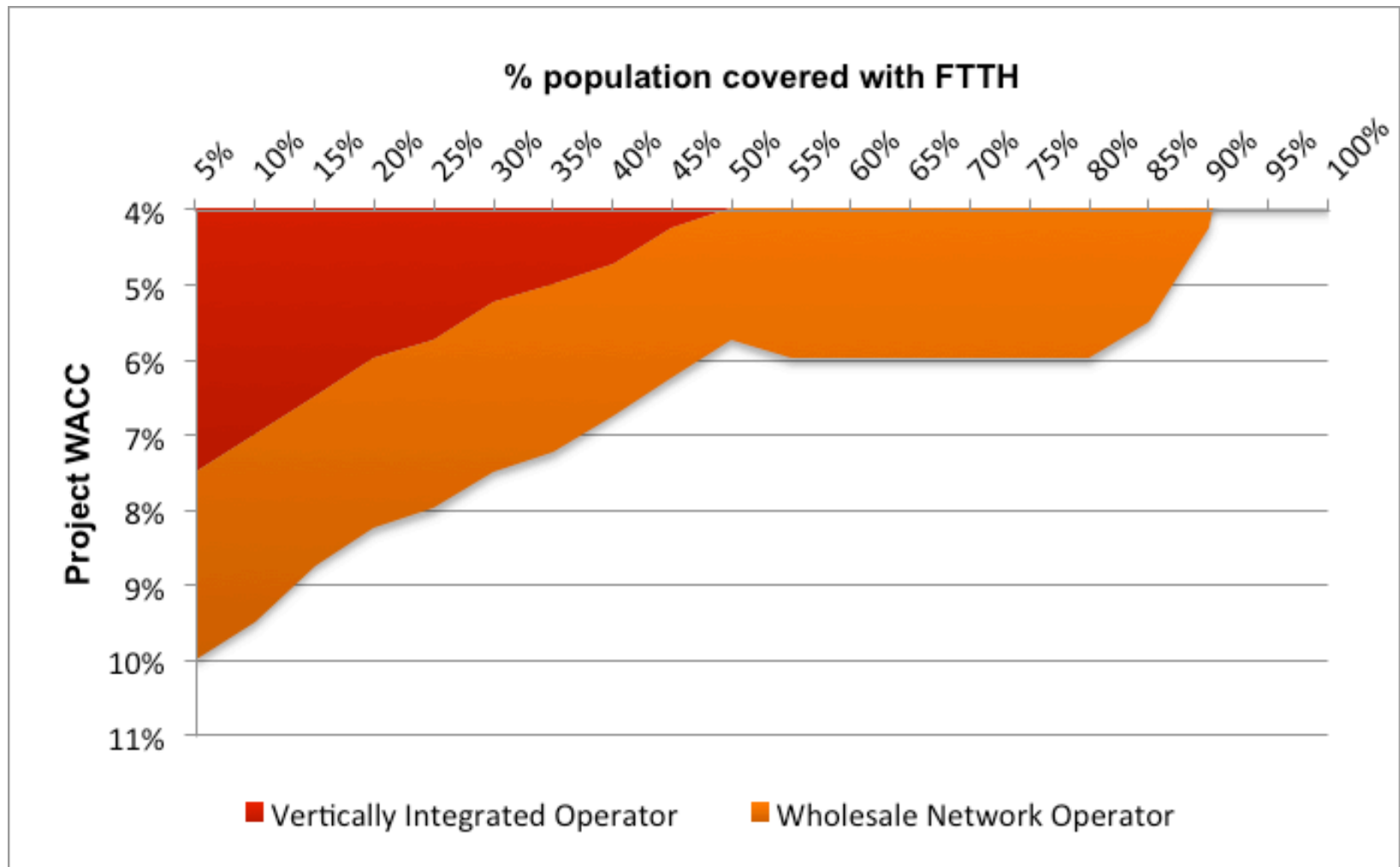
3

Profitability Mapping

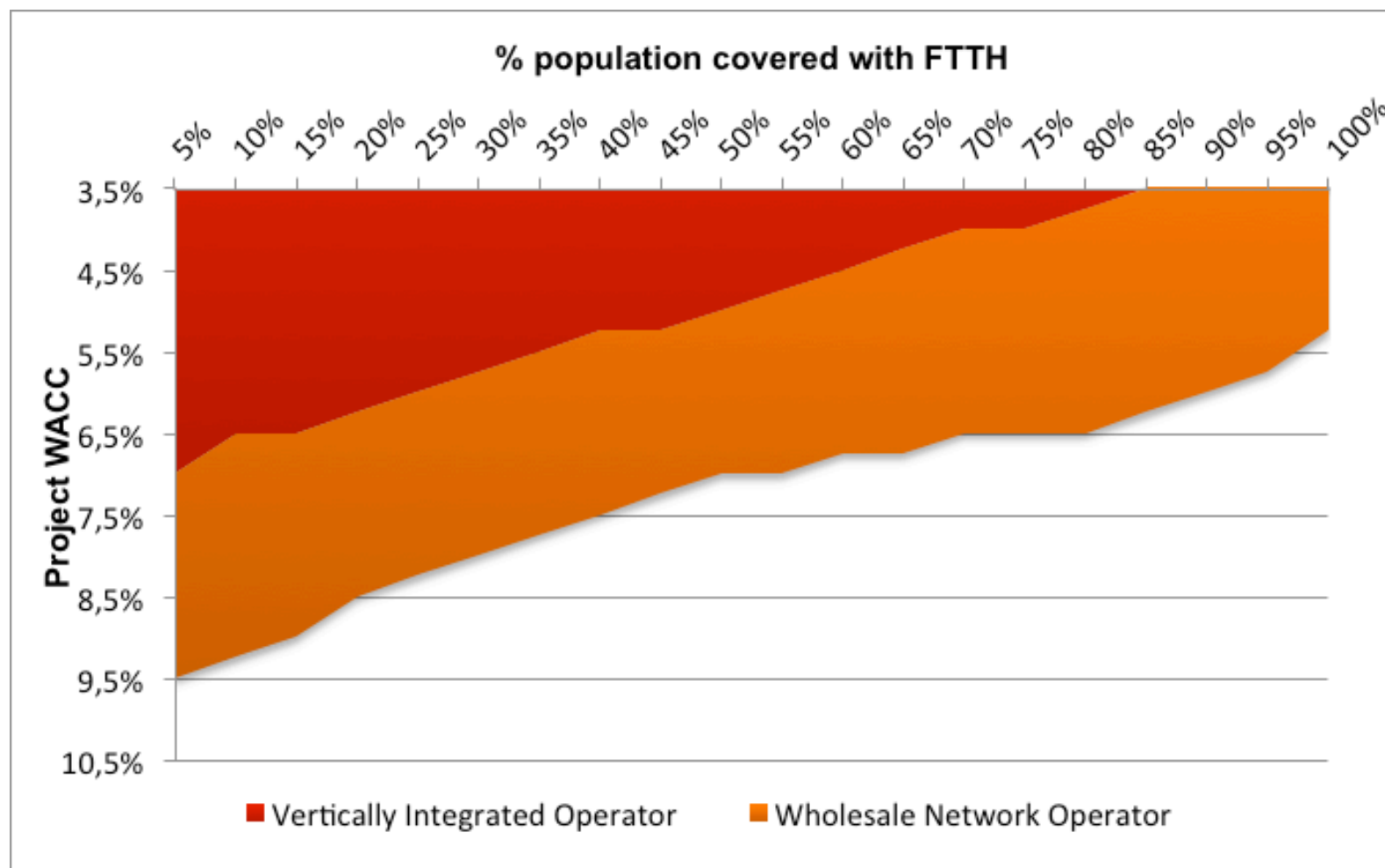
For a range of risk profiles, maps the 'reach' of a profitable deployment

25 Years

NPV positive cluster mapping



Zero overall NPV mapping










De-Risking aka. Lowering the WACC

- WACC (Weighted Average Cost of Capital) is often used in policy circles as a tool set by the regulator to determine regulated prices.
- In market finance however it is first and foremost an objective assessment of the risk of a given project determined by investors based on their perception of said risk.
- Regulators and policy makers can lower the WACC by lowering the risk perception of the investors.
- There are various policy approaches to do so, but they don't work the same depending whether the model is VIO or WNO.

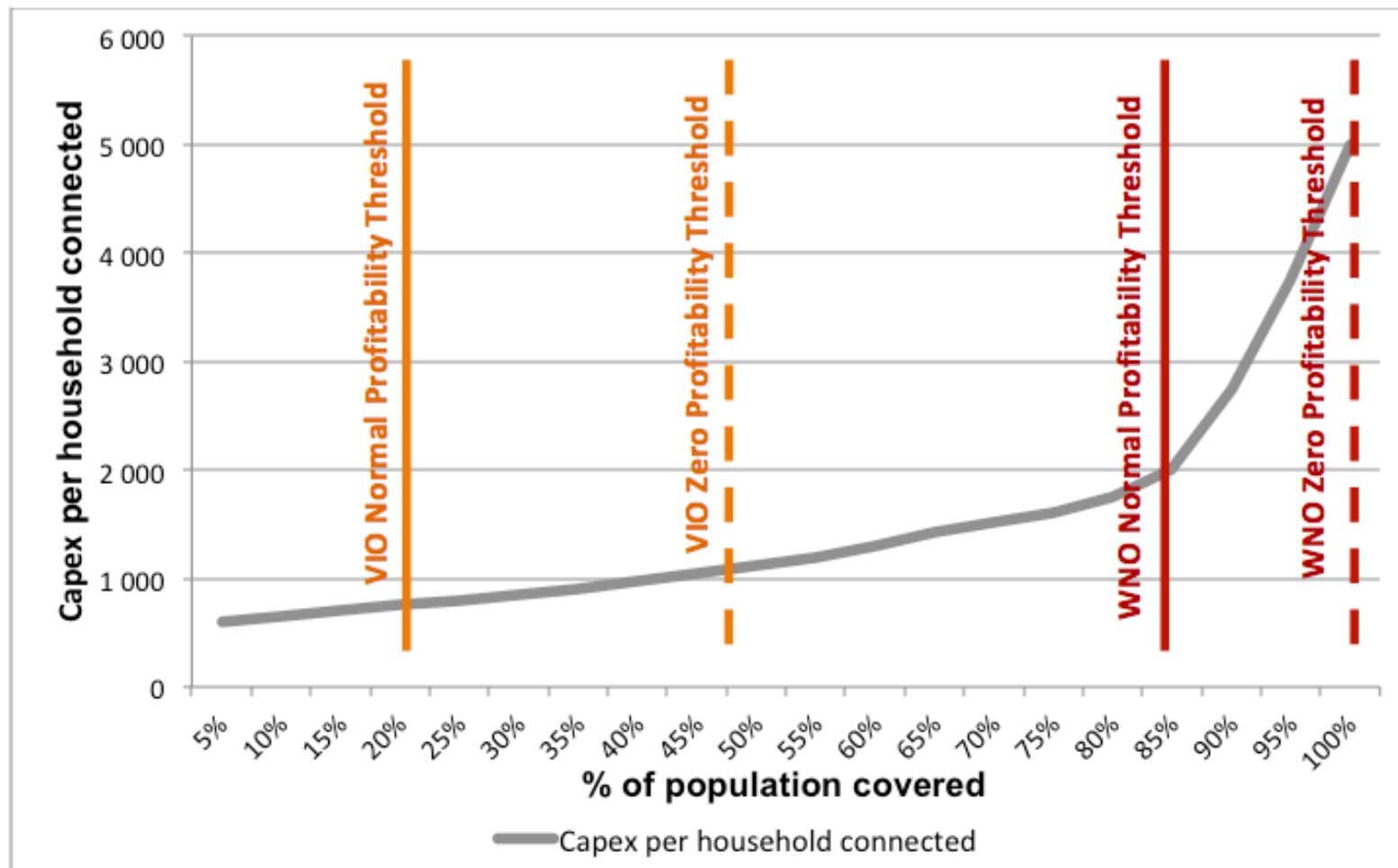
De-Risking VIO

- Lowering deployment costs → Increases Competition
- Increasing regulated prices → Decreases Competition
- Promote FTTC/VDSL → Not Future Proof
- Anchor Tenancy → Decreases Competition
- Social Tariffs → Increases Take-Up, Decreases ARPU
- Market Consolidation → Decreases Competition
- Lengthening Regulatory Cycles → Hard to Anticipate

De-Risking WNO

- Lowering deployment costs  Increases Margins
- Increasing regulated prices  Decreases Competition
- Promote FTTC/VDSL  n/a
- Anchor Tenancy  Increases Take-Up
- Social Tariffs  Increases Take-Up,
Decreases ARPU
- Market Consolidation  n/a
- Lengthening Regulatory Cycles  Creates Revenue Stability

Coverage Frontier at 5% WACC



Source: Diffraction Analysis

Changing the Regulatory Model

- Structurally Separated FTTH Infrastructure does not need public funding to achieve quasi-national coverage;
- In order for such a plan to work, the regulatory and policy model needs to change to a longer term view;
- Instead of regulating prices, WNO should see their profits regulated;
- That shift should be a quid pro quo in exchange for national coverage;
- This is what is now happening in New Zealand with a shift from price regulation to building blocks regulation from 2020.
- Subsidies can then be considered to accelerate deployment or focus on the really hard to reach areas.

Conclusions

- FTTC/VDSL will not deliver the long term nation-building outcomes that the Italian people should expect to remain competitive in a global world.
- FTTH cannot be delivered by existing telcos to over 60-70% of the population without massive subsidies.
- Changing the market structure however derisks the network building and commercialisation so much that subsidies are no longer needed to achieve coverage to 80-90% of the population.
- In order to work, such a structural shift needs to be accompanied by a shift in regulatory models to create the certainty infrastructure investors need.
- Italy is at a digital crossroads with a key opportunity to enter kicking and screaming into the world of fiber.

Questions ?

- Most of the concepts presented here can be found in our report «Can Structural Separation via spin-offs help Europe achieve its broadband ambitions ».
- Contact Benoît Felten at benoit@diffractionanalysis.com or on twitter: @fiberguy



For the exclusive use of XXX employees
DO NOT DISTRIBUTE

Can structural separation via spin-offs help Europe achieve its broadband ambitions?

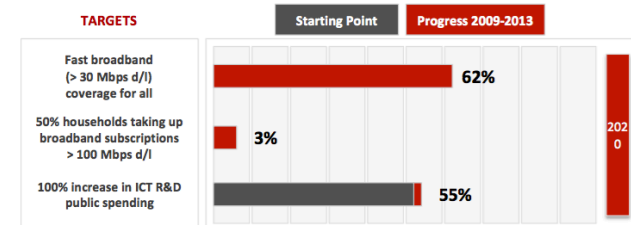
By Thomas Langer, Senior Analyst, and
Benoît Felten, Chief Research Officer

July 2014

Executive Summary

By the end of this year, the new European Commission (EC) will be in office. New Commissioners will bring in new ideas while facing old problems. They will inherit the broadband targets set out in the Digital Agenda for Europe (DAE): by 2020 Europe wants download rates of 30 Mbps for all of its citizens and at least 50% of European households subscribing to Internet connections above 100 Mbps. However, the latest Digital Agenda Scoreboard¹ shows progress of 62% and 3% against these targets, respectively. How can these objectives be achieved when the EC and governments cannot directly force privately or publicly owned companies to invest?

Exhibit 1: Europe is making slow progress towards Digital Agenda broadband targets



Source: European Commission, 2014

¹ <http://ec.europa.eu/digital-agenda/en/digital-agenda-scoreboard>