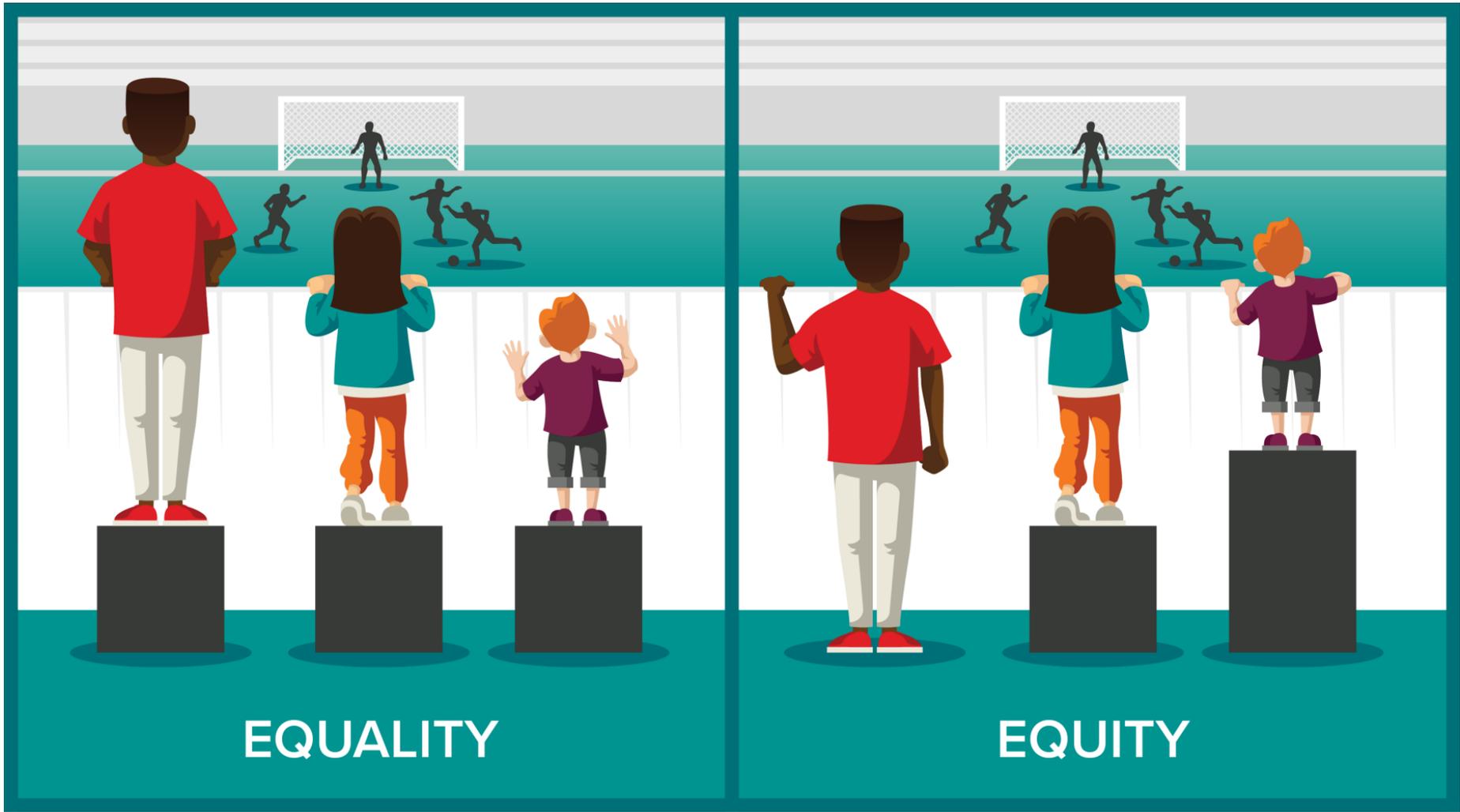


# Equitable Digital Access for Students

Digital Divide Workshop – 15<sup>th</sup> August 2019

Ann Bentley & Mehrdad Fatemi



EQUALITY

EQUITY

# Agenda

1. Why try
2. MoE solution scope
3. Cost and approach

....

4. Distraction of justifying digital inclusion in silos



# Equitable Digital Access for Students

# Why try.....

What the research tells us:

- While the context within which students learn is critical, internet access in the home relates to positive outcomes for children's learning, psychological development, social skills and parental engagement in their child's education. (Equitable Access to the internet – A Literature review – Victoria University of Wellington 2018)

What the sector tells us:

- 36% of respondent schools reported a lack of home internet access impacts teaching and learning. These students were identified as being more likely to be left behind or under-served (N4L Touchpoint survey 2019)
- Teachers with high proportions of digitally excluded students can't leverage the digital opportunities in their teaching practice, consequently all students in these learning cohorts become disadvantaged
- More learning is taking place online and the range of learning activities and technology uses is widening... but not so much if you don't have internet access at home

***....“students with books at home were more successful; having access to them in the library and at school just not as good”***



# Problem for Vote Education

**NZ has 808,439<sup>1</sup> school age children living in around 400,000 households**

**Up to 100,000 school age children living in 40,000 households do not have home internet**

Naenae 45% of households

40% of students in Opotiki, Kawerau and Wairoa

Localised endeavours to solve the problem, but these are often....

- not scalable
- overbuilding existing infrastructure
- not sustainable

<sup>1</sup> - as at end of 2018 – Source EdCounts

# Pilots

## Pilot #4 – Taitokerau Education Trust

# students – 60-100, across 7 schools



- fibre to home WiFi



- Satellite to home WiFi

Piloting – utilisation of dormant fibre connections to homes

## Murupara Area School

# students – 320 (yrs 1-13), 160 homes



- Wireless Internet Service

Piloting – Rural WISP service

Service availability – 20<sup>th</sup> May 2019

## Pilot #5– East Auckland

# students – 3,000



- Wireless Internet Service

Piloting - Integration of identity brokering & filter into an existing off campus network for students of 12 schools,

## Rata Street Primary school

# students – 131 (yrs 5&6), 128 homes



- fibre to home WiFi

Piloting – fibre solution

Service availability – 10<sup>th</sup> September 2018

## Pt. England

# students – 588 role, 30 students connectivity



- mobile unit WAP, 4G backhaul, providing wireless internet access

Piloting - “mobile classroom”, internet in a box, solution for EOTC (Education Outside The Classroom)

## Haeata Community College

# students - 390 of 737 (across years 1-13), 360 homes



- “power to the pole” providing wireless from the street

Piloting – power to the pole technology and urban community WiFi

Service availability – 21<sup>st</sup> September 2018

## Pilot #6 – Greater Wellington Region

# students – 80 (years 4-8), 60 homes



- 4G to home WiFi

Piloting – Mobile technology solution

## ConnectEd Aranui

# students - additional 600 students (across years 1-13)

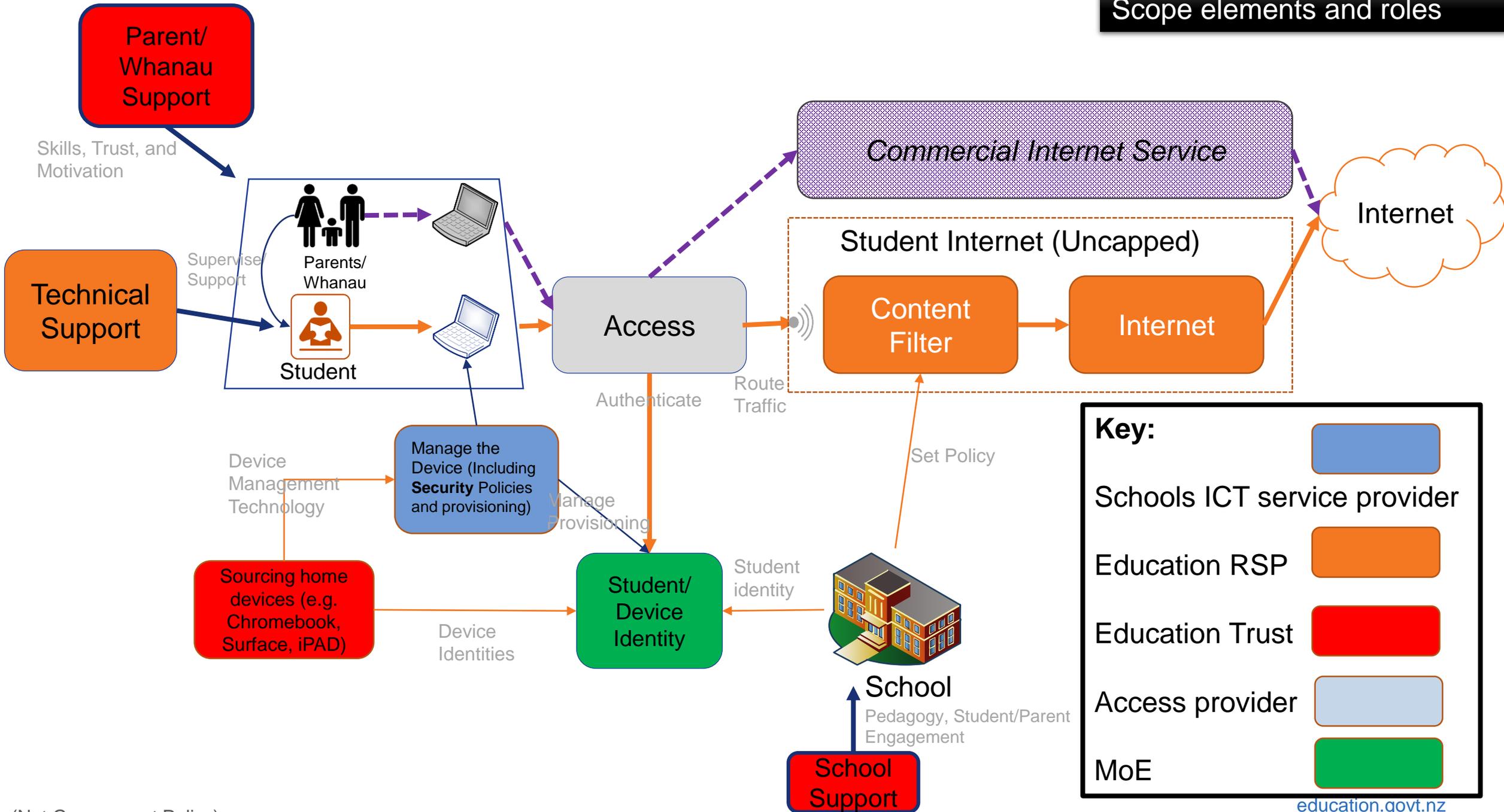
Extending use of the Haeata “power to the pole” solution

Start up tbc

Pipeline

underway

# MoE Solution scope



**Key:**

- Schools ICT service provider
- Education RSP
- Education Trust
- Access provider
- MoE

(Not Government Policy)

# Outcomes Evaluation



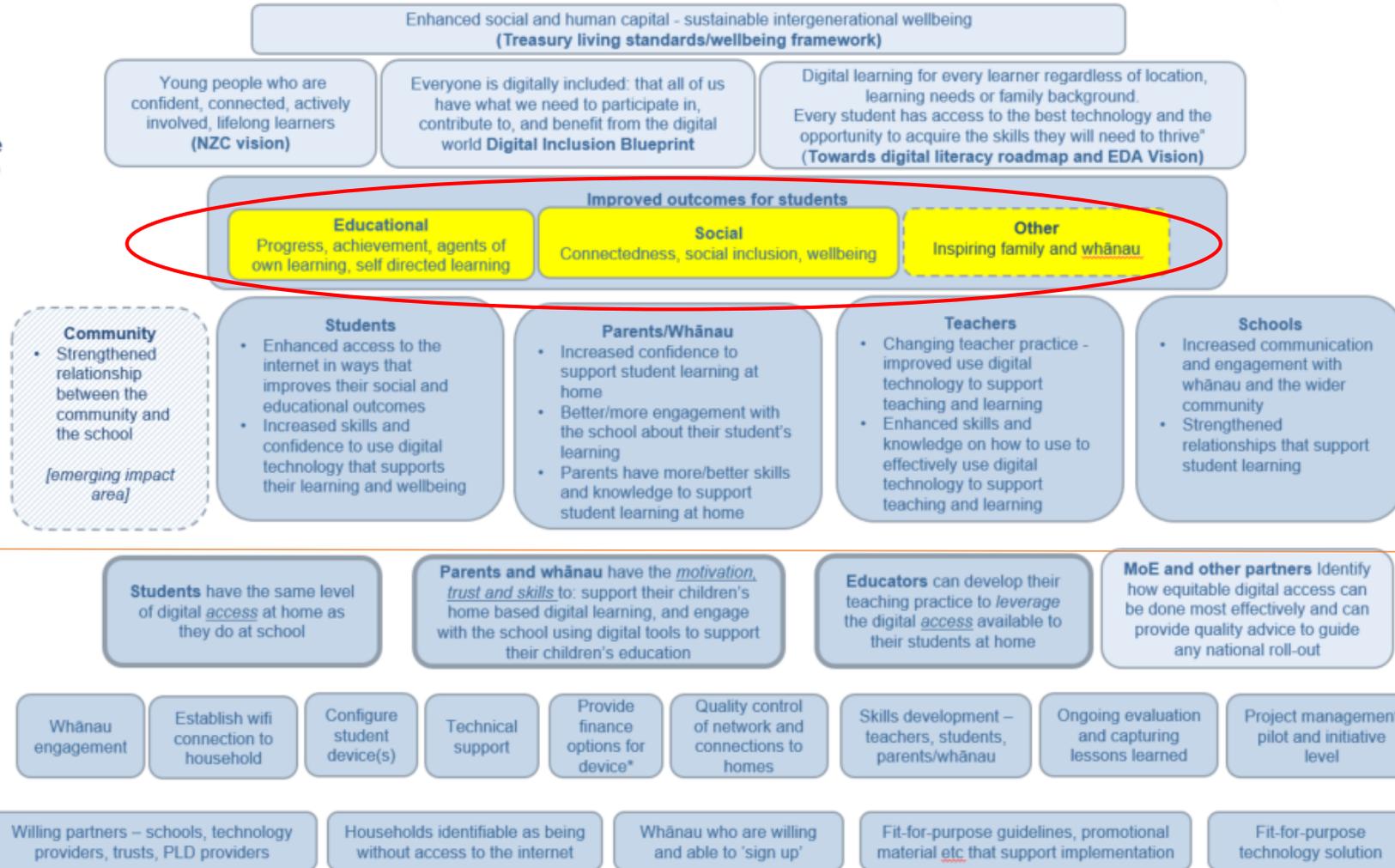
So that we contribute to these long term outcomes ....

This means....

Project 'success' is....

Activities and outputs

Our key inputs are...



Outcomes



Implementation

# Early outcomes

*“my kids LOVE kapa haka....[so they watch other groups] they master it to a tee.....and its giving them a lot of confidence to go on the stage”*

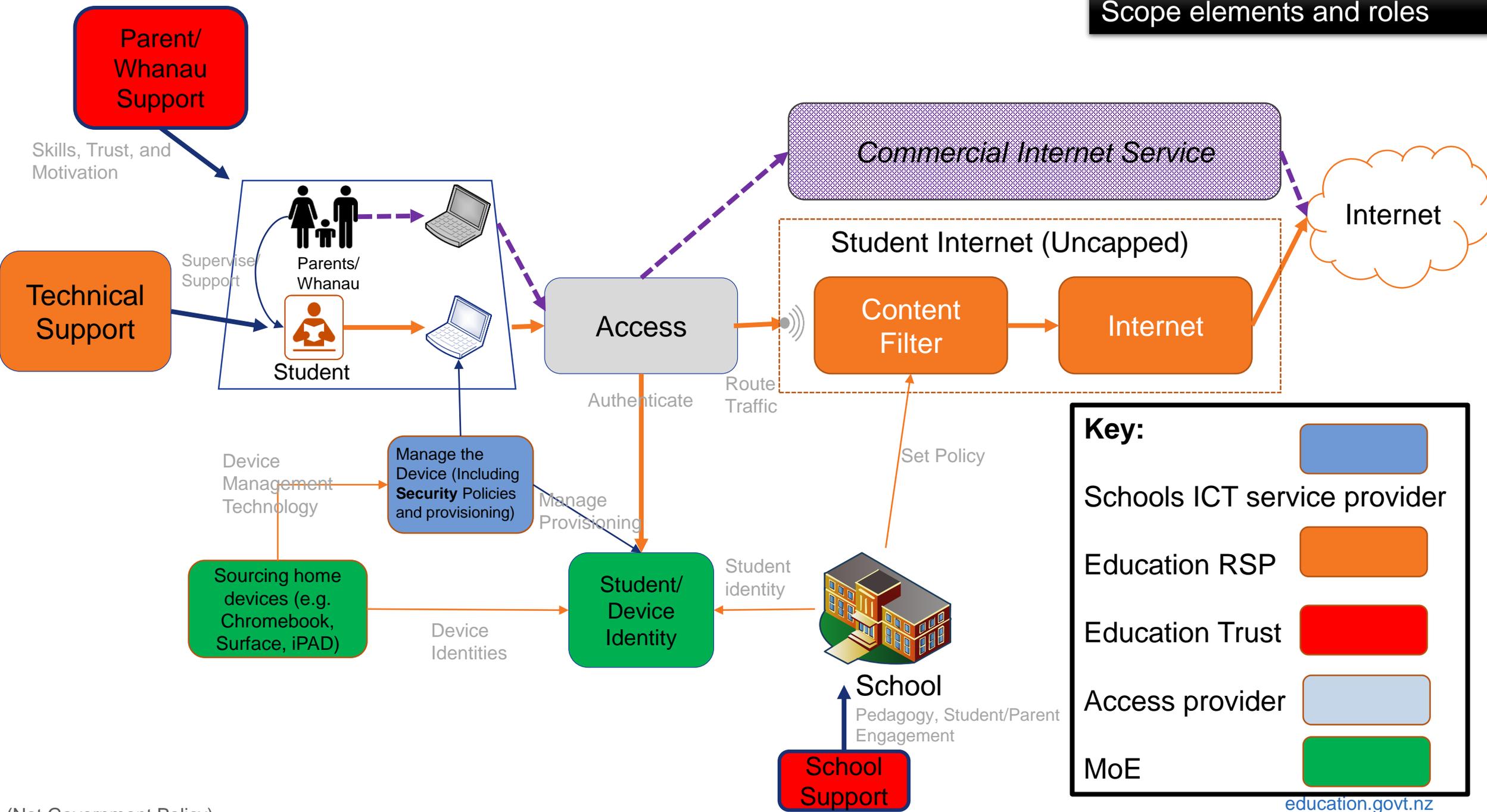
*“they log on, and whatever – if its maths, reading, or spelling, they can just click on what they want to do.....Its really cool! I sat with them for the first couple of go’s to make sure it was legit...but they’ said that’s what they do at school. **It was really cool”***

*“my son showed me how to go on it myself [LincED], so I stalk them now...I love it...seeing proof of their work, things they’ve done at school”*

*“.....they come home and tell us a lot of stories!”*

*“When my son first started here he was having so many problems...he never want to go school.....he was really slow with the equations and the kids were saying ‘loser loser’ and his confidence just went downhill. **But ever since he got the laptop and we started working on the equations and things....He’s up early...he loves it. That’s the big change...my heart used to break”***

# National solution - Cost and approach



(Not Government Policy)

# Proposed approach to implementation

- Approach informed by the pilots
- Central coordination, with localised delivery
- Templated approach to business change:
  - School and community centric
  - Local ownership, prioritising local delivery partners where possible
  - Significant investment in change management and training to support and maintain uptake

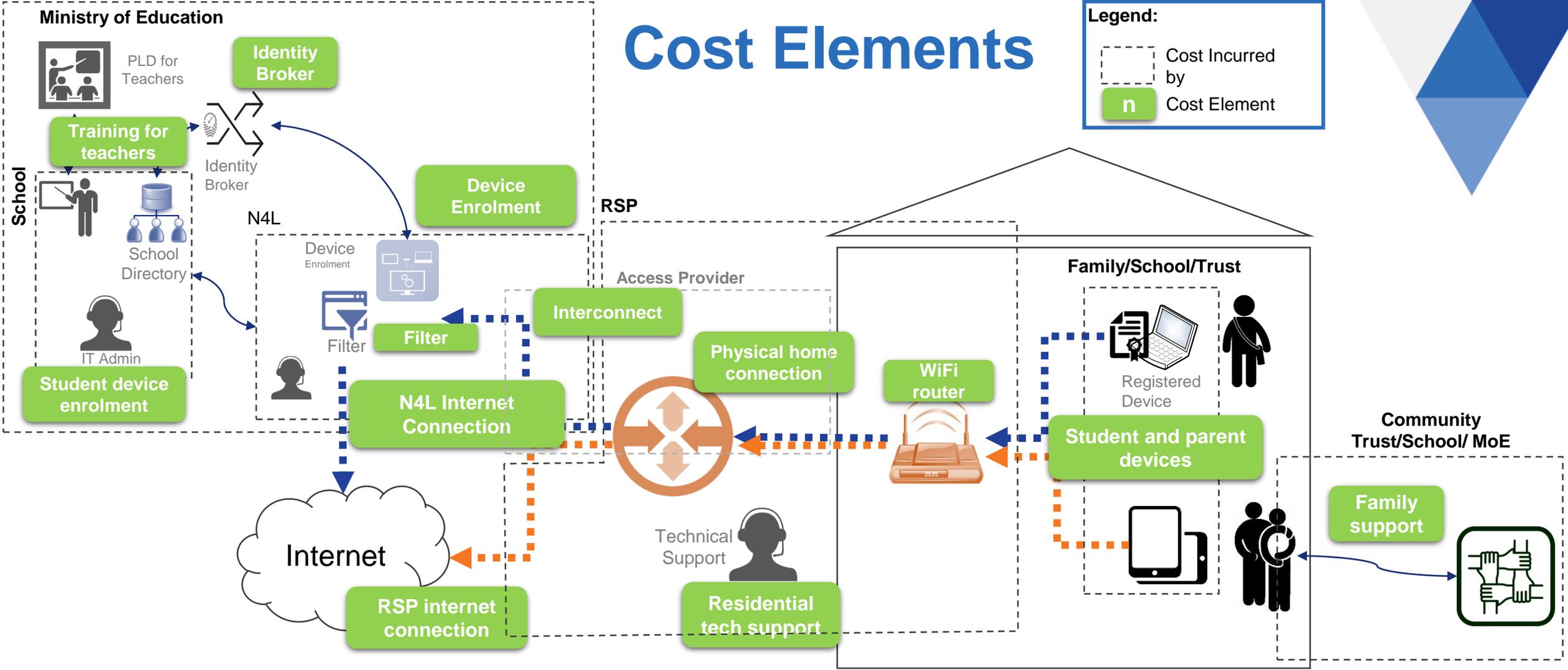
# Proposed approach to implementation

- Templated, national approach to technology acquisition and implementation:
  - Security and safety
  - Access infrastructure (fibre, cellular, WiFi, satellite)
  - National or regional approach to Internet access
  - Enabling families to procure devices

# Cost Elements

**Legend:**

-  Cost Incurred by
-  Cost Element



# Cost model

| <b>Project Costs</b>                         | <b>\$m</b> |
|--|------------|
| Infrastructure                               | 15         |
| Change management and local delivery         | 72         |
| Student devices ( <i>financing support</i> ) | 11         |
| Central programme management                 | 2          |
|  |            |
|  |            |
| <b>Total</b>                                 | 100        |

| <b>Ongoing Costs</b>  | <b>\$m pa</b> |
|---|---------------|
| RSP / Internet access   | 3             |
| Layer 2 service / data access                                   | 15            |
| Security and access management                                  | 2             |
| Support services for families                                   | 2             |
| Student devices ( <i>financing support for device refresh</i> ) | 2             |
| Ongoing management  | 1             |
| <b>Total</b>  | 25            |

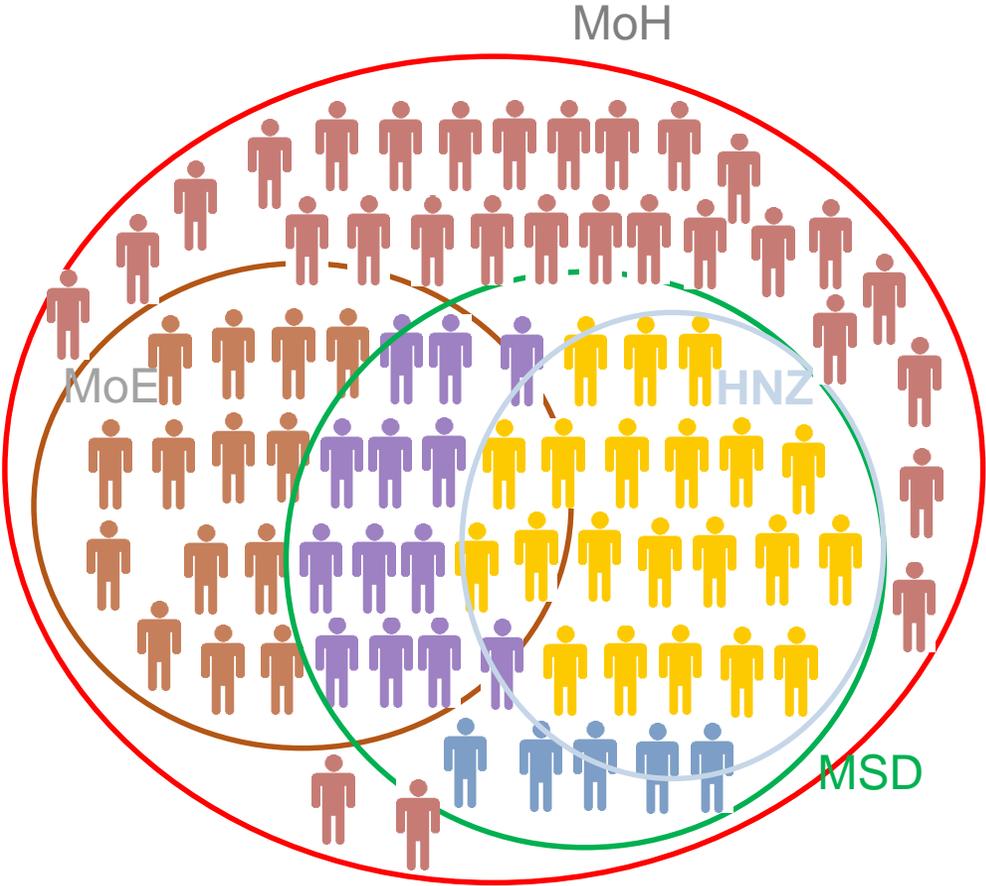
Equates to \$195m Over 5 years (assuming 3 year progressive roll out)

# Ideas for funding

1. Fully Govt. funded as new initiative, based on benefits in addressing digital exclusion in education
2. Combined – Govt. funding + commercial Education Certified RSP available universally, levied to fund the digital excluded

.....should investment decisions for infrastructure that can be shared be driven off education benefits?

# Public sector consumer communities (EDA)



**We're all working with the same people**

There are approximately 350,000 digitally excluded households

*(sources – 2020 Trust June 2018, Stats NZ projections 2013)*

# Cost model assuming cross Govt. / NZ approach

| Project Costs                                | \$m             |
|--|-----------------|
| Infrastructure*                              | (15) 4          |
| Change management and local delivery**       | (72) 36         |
| Student devices ( <i>financing support</i> ) | 11              |
| Central programme management                 | 2               |
|  |                 |
|  |                 |
| <b>Total</b>                                 | <b>(100) 53</b> |

| Ongoing Costs   | \$m pa          |
|---|-----------------|
| RSP / Internet access   | 3               |
| Layer 2 service / data access*                                  | (15) 4          |
| Security and access management                                  | 2               |
| Support services for families*                                  | (2)0.5          |
| Student devices ( <i>financing support for device refresh</i> ) | 2               |
| Ongoing management  | 1               |
| <b>Total</b>  | <b>(25)12.5</b> |

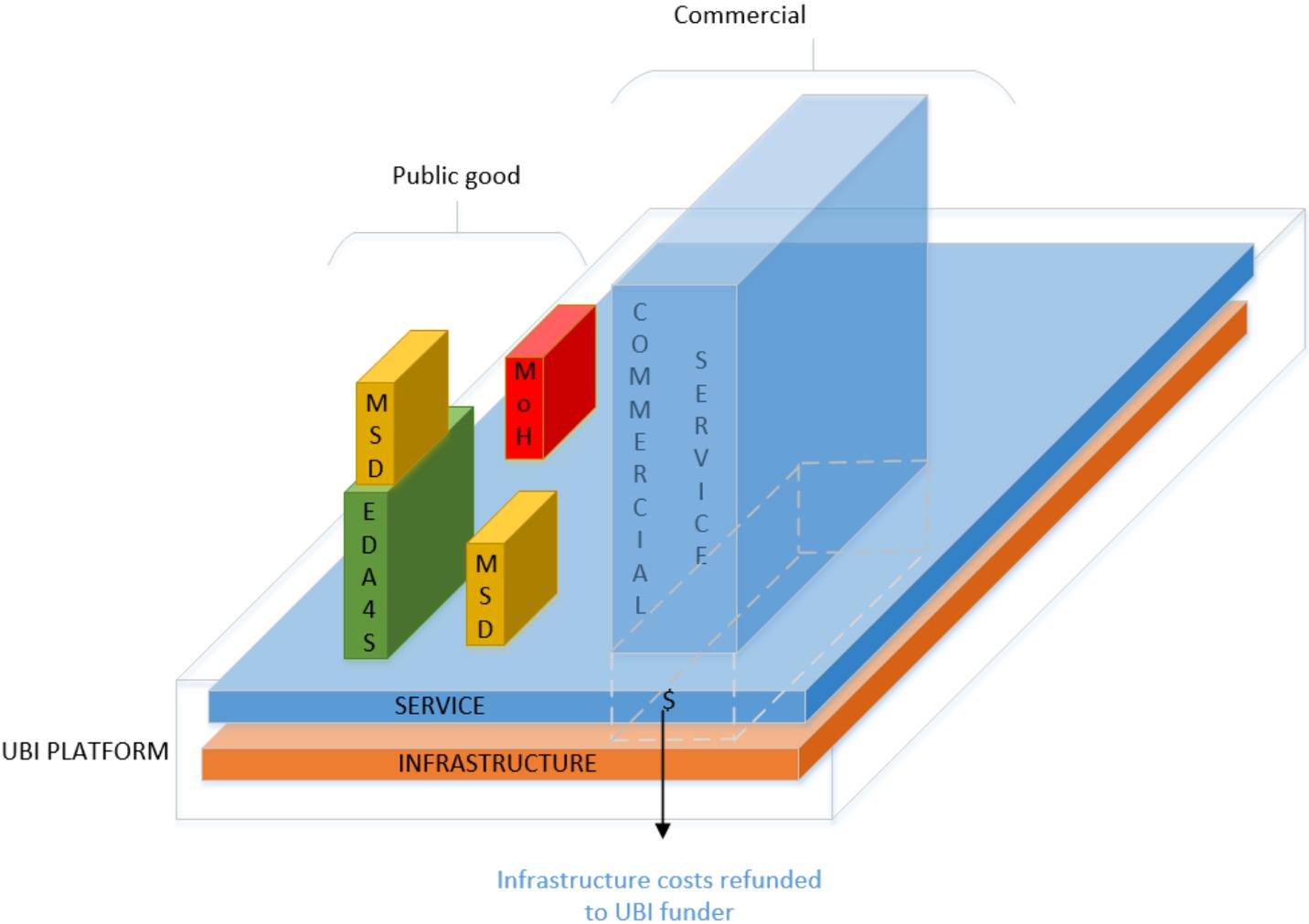
Equates to \$100m Over 5 years (assuming 3 year progressive roll out)

*EDA4S → → → → EDA → → → → UBI*

# Universal Basic Internet

- free internet access to all NZ'ers to access a limited subset of “public good” sites
- Delivered over existing network infrastructure (includes UFB, cellular and fixed wireless)
- Primary focus is provision of connectivity to the home, secondarily in community
- Targeted at the digitally excluded (financially disadvantaged or lacking digital confidence)
- Incentivising & enabling faster uptake of paid commercial internet services and/or additional targeted subsidised services (eg EDA4S, MyMSD)

# The UBI platform – commercial and public good tenants



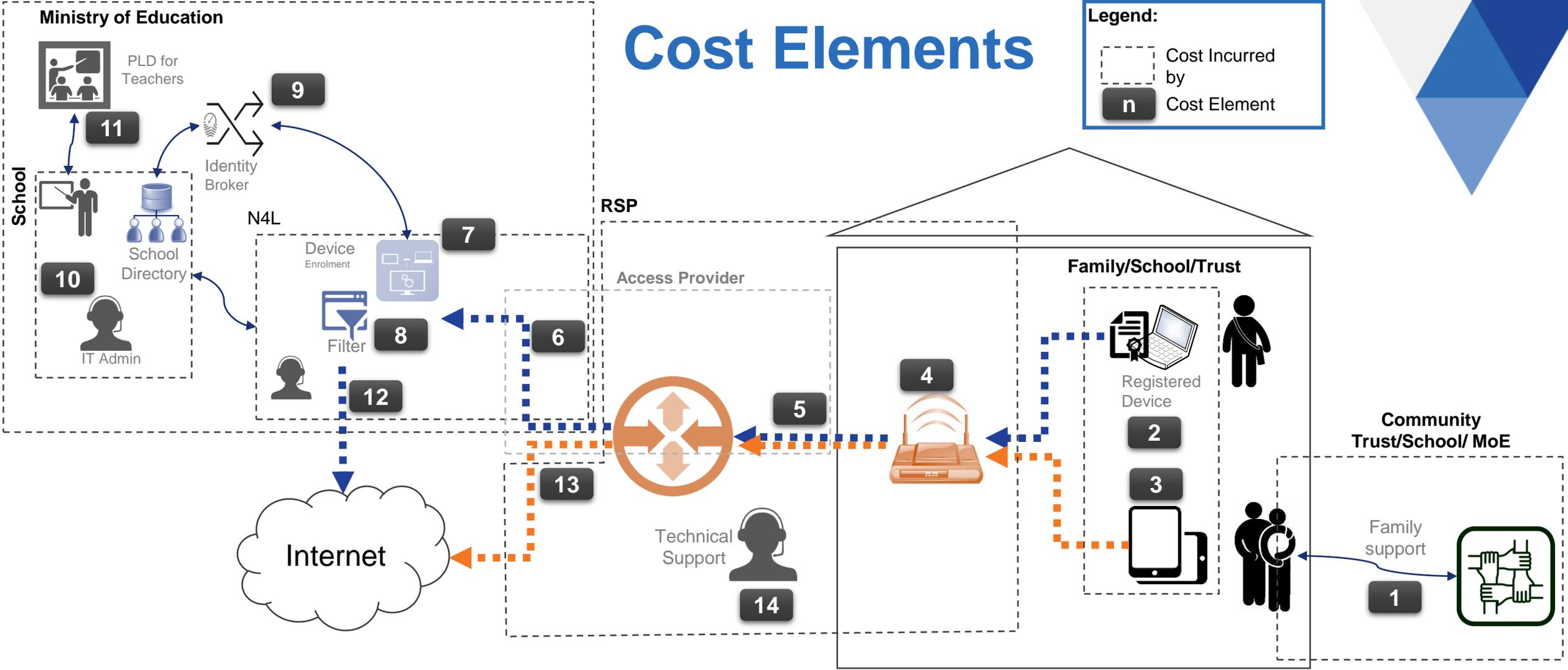
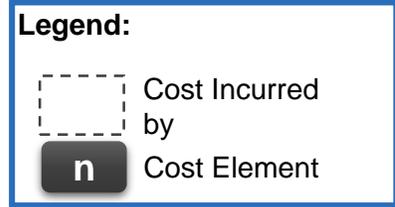
We **shape** an **education** system that delivers  
**equitable** and **excellent outcomes**

He mea **tārai** e mātou te **mātauranga**  
kia **rangatira** ai, kia **mana taurite** ai ōna **huanga**



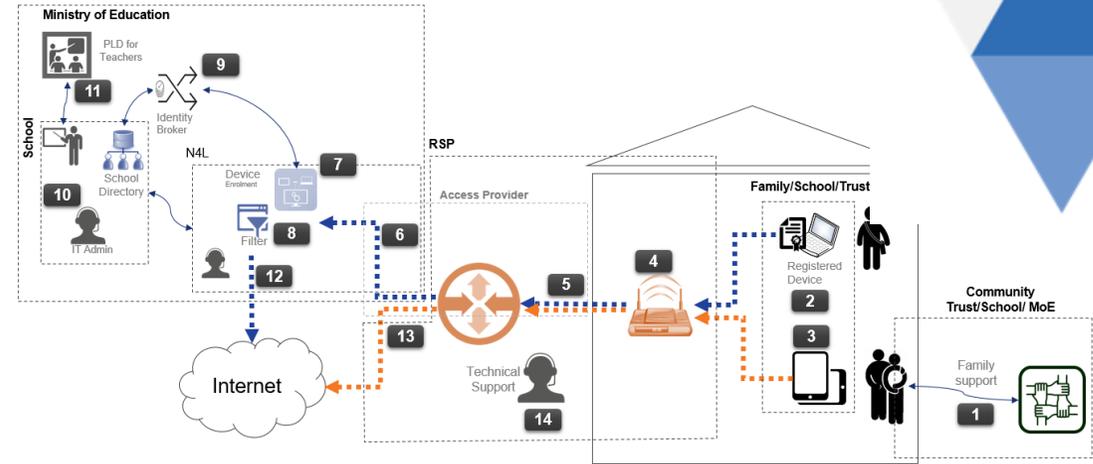
[education.govt.nz](http://education.govt.nz)

# Cost Elements



# Cost Elements

| # | Cost Element   | Incurred by                         | Relative scale             |
|---|--|-------------------------------------|----------------------------|
| 1 | Family support   | Community Trusts, Schools, MoE      | \$\$                       |
| 2 | Student Devices (per student)                            | Families, Community Trusts, Schools | \$\$                       |
| 3 | Parents Devices (per family)                             | Families                            | \$\$                       |
| 4 | Wi-Fi Router   | RSP                                 | \$                         |
| 5 | Physical home connection                                 | RSP/Access Provider                 | \$\$\$\$\$ (\$60M/\$15Mpa) |
| 6 | Interconnect   | N4L/Access Provider                 | \$\$                       |
| 7 | Device Enrolment Management (Cryptographic Certificates) | N4L                                 | \$\$                       |
| 8 | Filtering Infrastructure                                 | N4L                                 | \$\$                       |
| 9 | Identity Broker  | MoE                                 | \$\$                       |



| #  | Cost Element  | Incurred by             | Relative scale |
|----|---|-------------------------|----------------|
| 10 | Support student device enrolment                                | School                  | \$             |
| 11 | Training for teachers to take advantage of home internet access | MoE<br>Community Trusts | \$\$\$\$       |
| 12 | N4L Internet connection   | N4L                     | \$\$\$         |
| 13 | RSP Internet connection   | RSP                     | \$\$\$         |
| 14 | Residential Technical Support                                   | RSP                     | \$\$           |

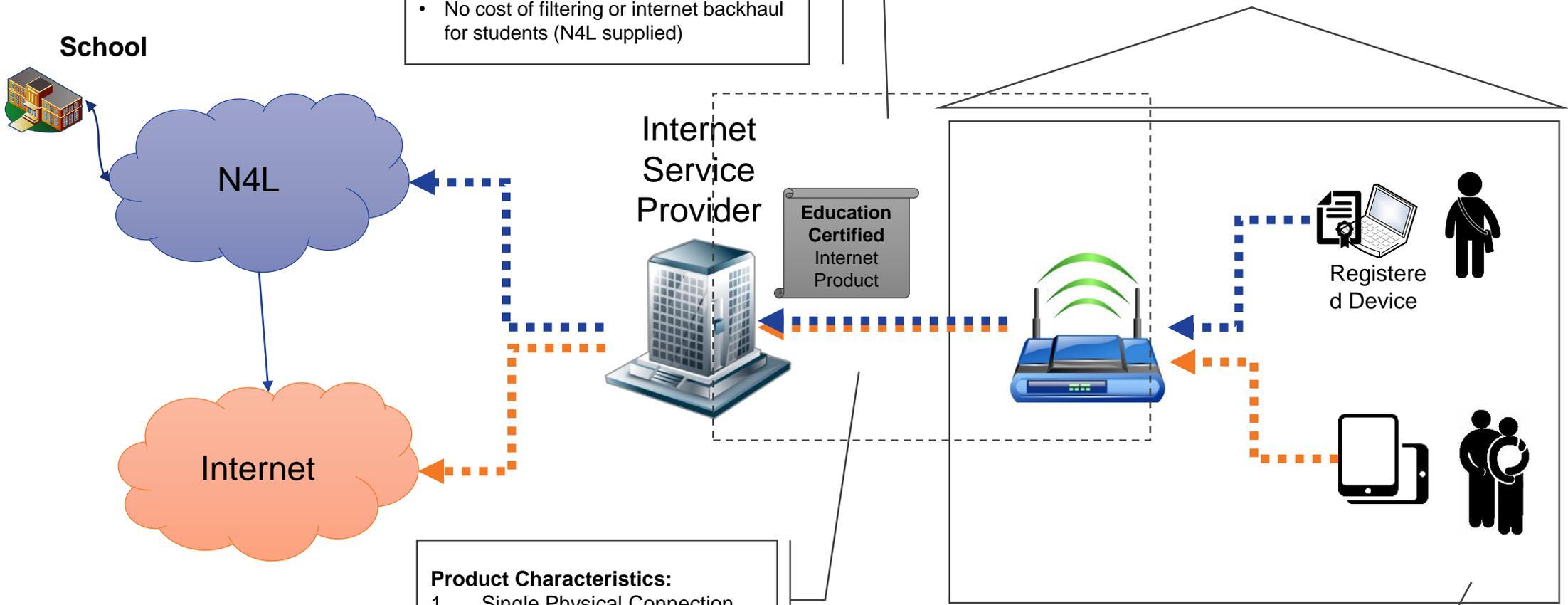
Ministry sponsoring identity and filtering services for 100% of families with school aged children in exchange for x% subsidised connections

**Value proposition for the RSP:**

- Access to 800,000 potential customers
- Maximise infrastructure use as the student usage is dominantly outside school hours
- No cost of filtering or internet backhaul for students (N4L supplied)

# Commercial Approach

## An Education Certified product for all families with school aged children



**Product Characteristics:**

1. Single Physical Connection, Multiple Virtual Connections
2. Any Backhaul (Fibre, 4G, Wifi, Copper)
3. Can bundle with existing products

**Value proposition for the Family:**

- Increased confidence in child safety online
- Lower cost
- Better participation in child education via the online services

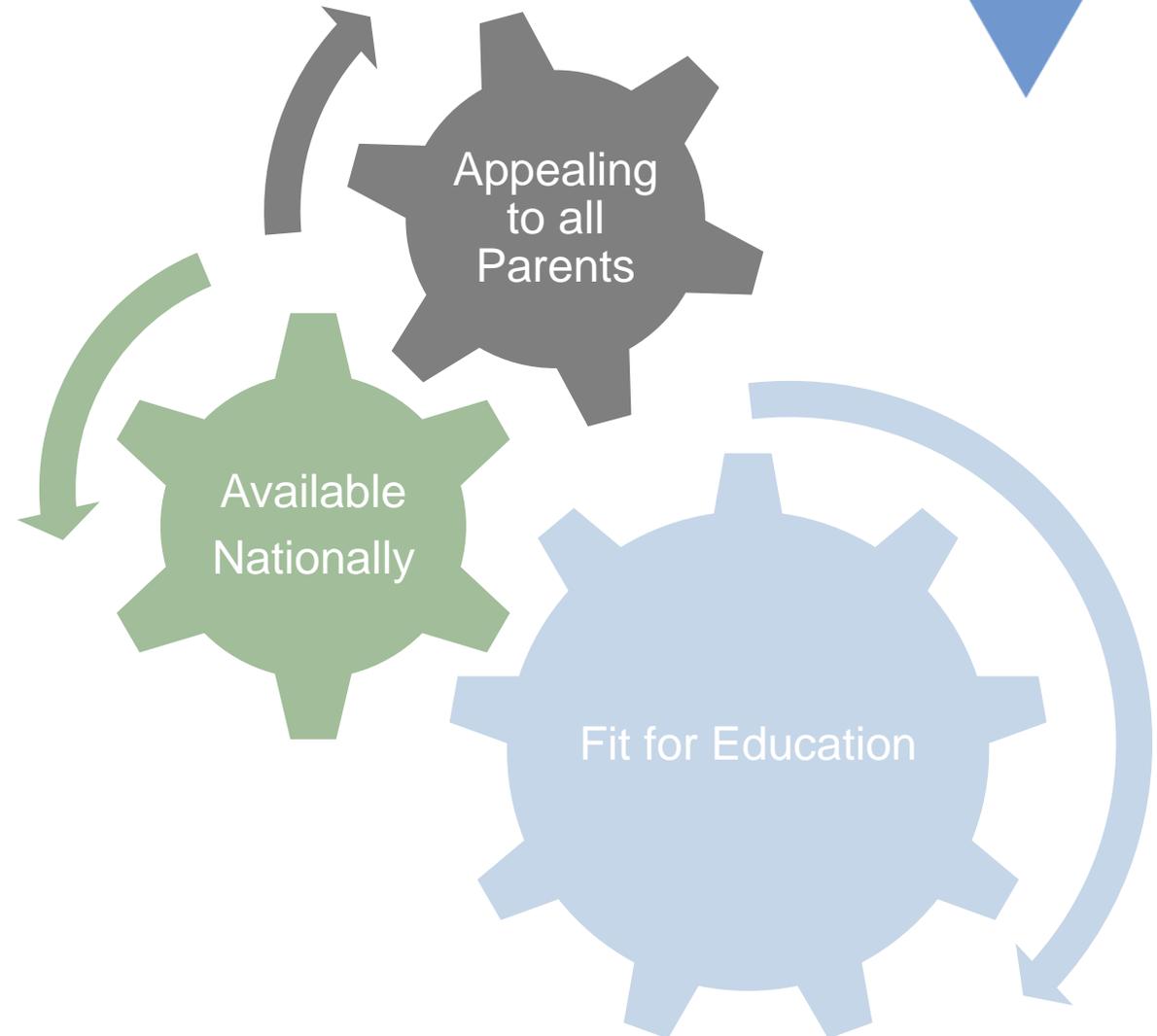
# A Sustainable Ecosystem

## Introducing the concept of “Education Certified”

Can be stamped on any commercial product that meets the criteria

Delivers a universal experience to the student

Backed by the school and the Ministry



# A Universal Offering – Education Certified Service

## Market information

- 800,000 School aged children
- 400,000 Households
- >90% urban

## Potential Affordability Issue for:

- 100,000 School aged children
- 40,000 Households

Enquire of audience other ideas for co-branding supporting – subsidising on a content filter product is one option

## Getting the “Education Certified” stamp for a Telco Product

- Wifi Access
- Unmetered service
- Enough bandwidth to support SD streaming
- Filtered in accordance with the school policy
- Authenticated – Using device certificate issued using student credentials in the school directory

