

Government supported national fibre initiatives: Commercial models and examples

Ivan Skenderoski



1. Why are governments investing in national fibre network projects?
2. What are the different models available and how they compare?
3. What have others done? Singapore vs Qatar
4. How to choose the right model?



Declaration of broadband and access to the internet as a basic human right



United Nations – 2011 Human Right Council Report

National fibre network is critical piece of infrastructure

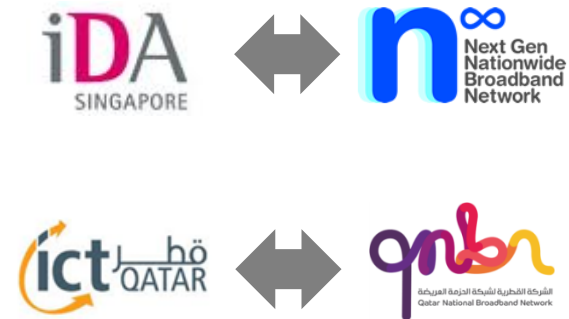
Access to high speed broadband is linked with the economic prosperity of the country

Stimulating demand and supporting the national rollout are key initiatives and part of every national ICT plan

Main Goals

		
Broadband adoption	90%	90%
ICT contribution to GDP	x2 (\$26 bil)	x2 (\$3 bil)
ICT jobs increase	66% (80K adds)	100% (20K adds)

Singapore IN2015 and Qatar ICT Plan 2015



Source: IDA Singapore and ictQatar

Operators usually don't have the commercial justification for doing it nationally

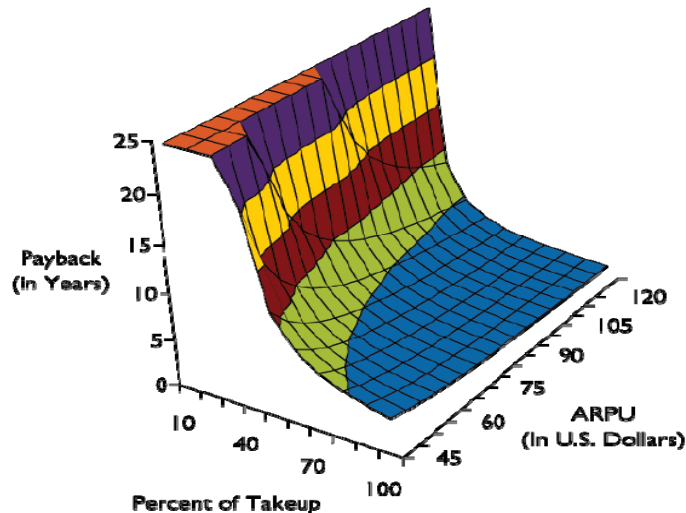
Nationwide roll-out is very expensive.

Business case payback period is usually more than 10 years

More than 50% of the costs are in the civil works

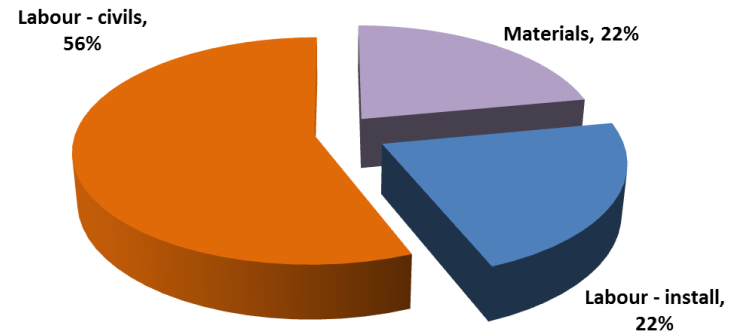
Duct reuse could vary things a lot

Discounted FTTH payback analysis



Source: Yankee Group.
Based on 1000 USD cost per home / 45% margin and 12.5% WACC

Cost breakdown FTTx



Source: Alcatel-Lucent

1. Why are governments investing in national fibre network projects?
2. What are the different models available and how they compare?
3. What have others done? Singapore vs Qatar
4. How to choose the right model?

Governments have usually two levers they could use

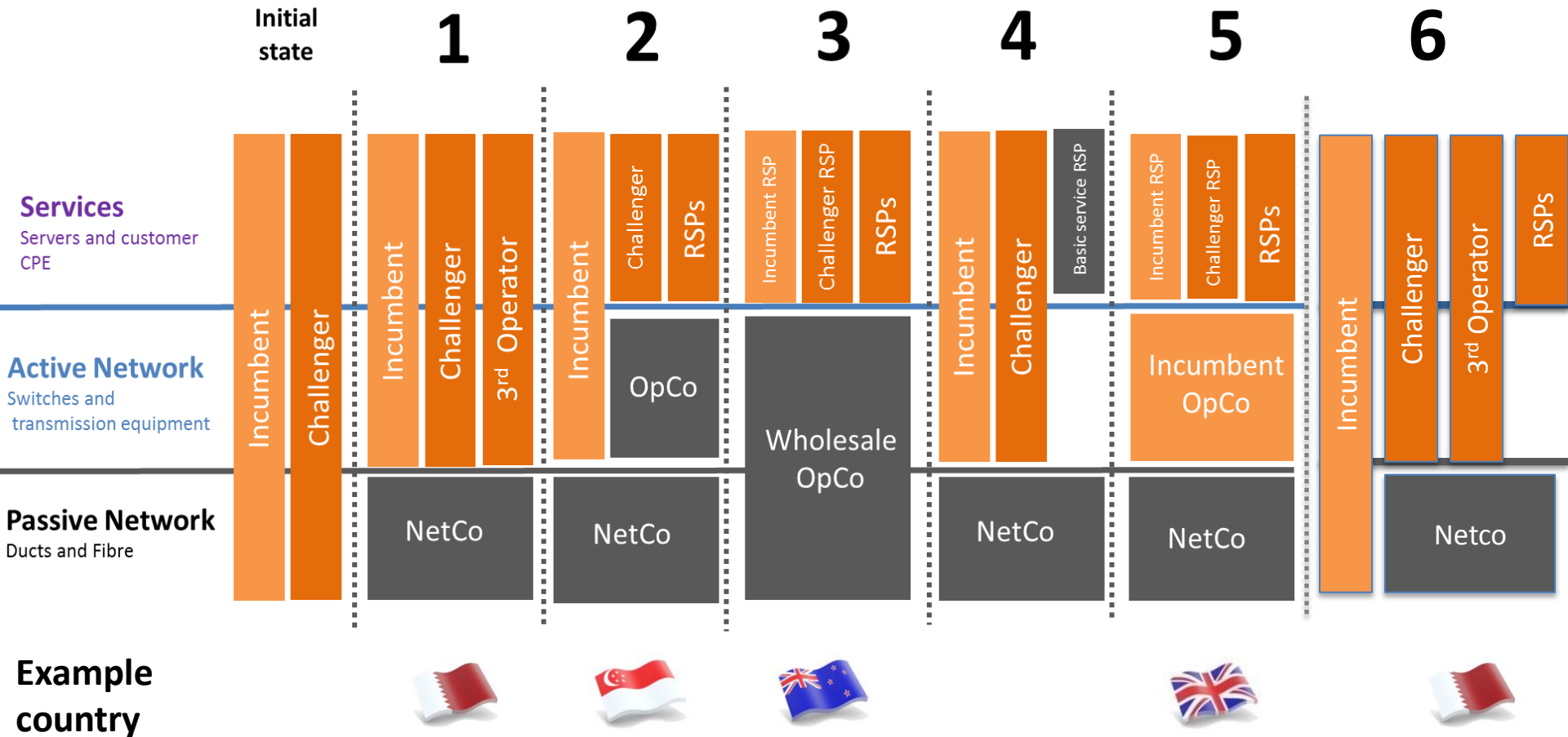
1. Financial involvement

- National level subsidy
- Local government support usually as gap filler where operators can't afford

2. Regulatory measures












- Regulatory holidays
- Regulatory access
- Separation (structural/functional)
- Nationalising the assets and creating government utility

Models differ in the level and scope of government involvement



Source: Saliency analysis

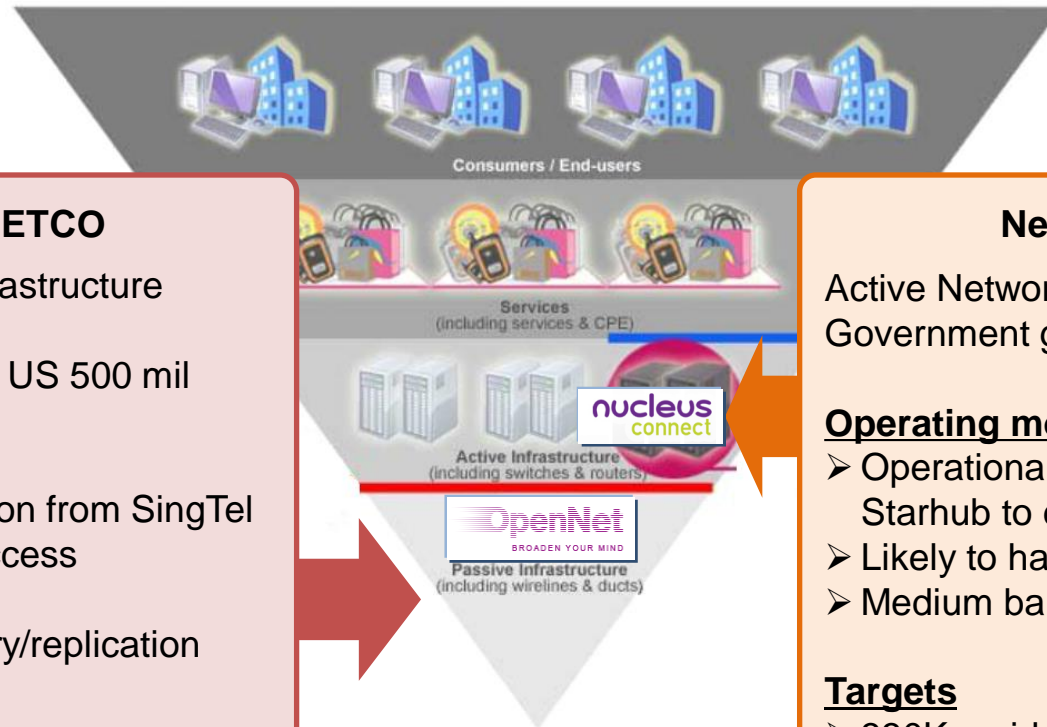
Regulatory exclusivity is the only model that works without government subsidy

Government intervention	Subsidy		<p>To incumbent</p> <p> Japan</p> <p> Taiwan</p> <p>To third party</p> <p> Singapore</p>	<p> New Zealand</p> <p> Australia</p> <p> Qatar</p>
	No Subsidy	<p> United States</p> <p> Hong Kong</p> <p> South Korean</p>	<p> European Union</p> <p style="text-align: center;">↑</p>	<p> United Kingdom</p>
		Regulatory exclusivity	Regulated access	Separation (functional/structural)
			Regulatory outcome	

Source: McKinsey Analysis

1. Why are governments investing in national fibre network projects?
2. What are the different models available and how they compare?
3. What have others done? Singapore vs Qatar
4. How to choose the right model?

Singapore had great vision but long road to success



Next Gen NETCO

Passive Network Infrastructure company
Government grant of US 500 mil

Operating model

- Structural separation from SingTel to ensure Open Access
- Natural Monopoly
- High barrier of entry/replication

Targets

- 50% coverage by 2012
- Universal service by 2015

Next Gen OPCO

Active Network company
Government grant of US 170 mil

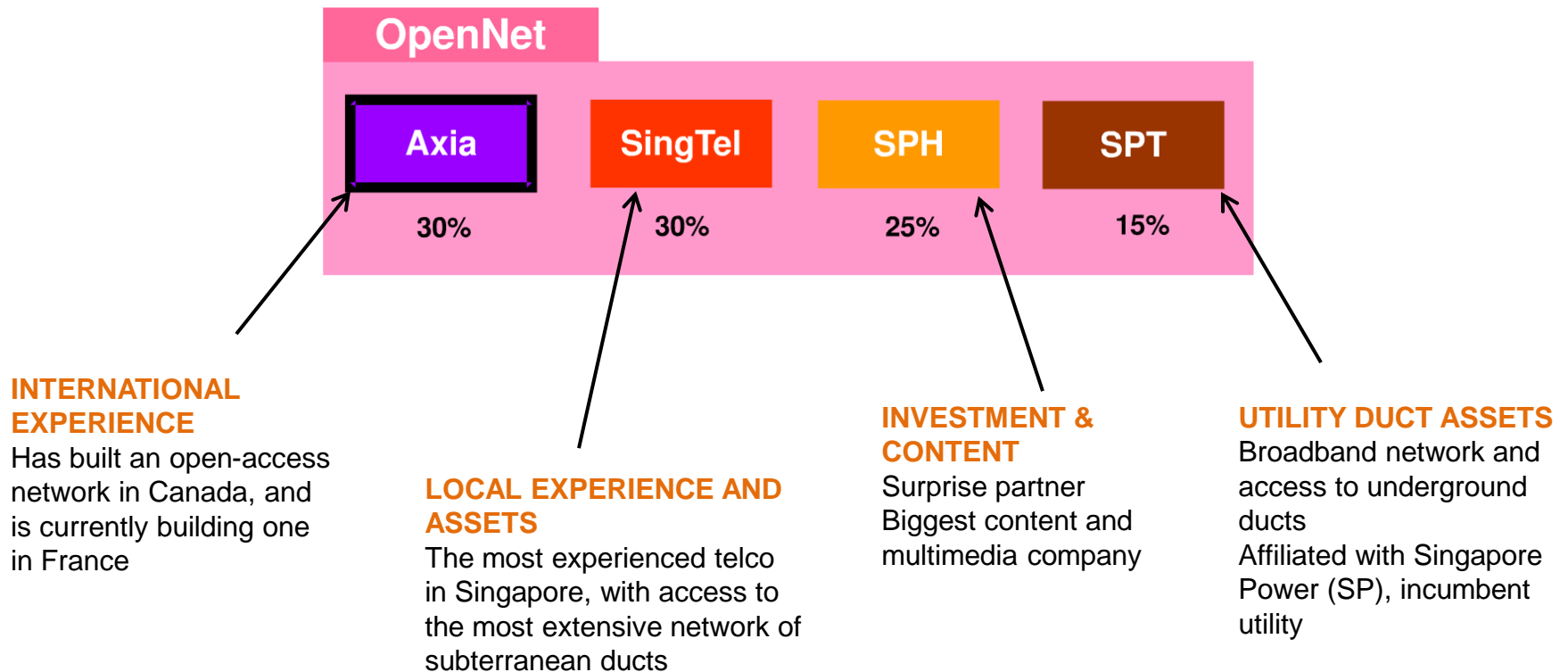
Operating model

- Operational separation from Starhub to ensure Open Access
- Likely to have multiple OPCOs
- Medium barrier of entry/replication

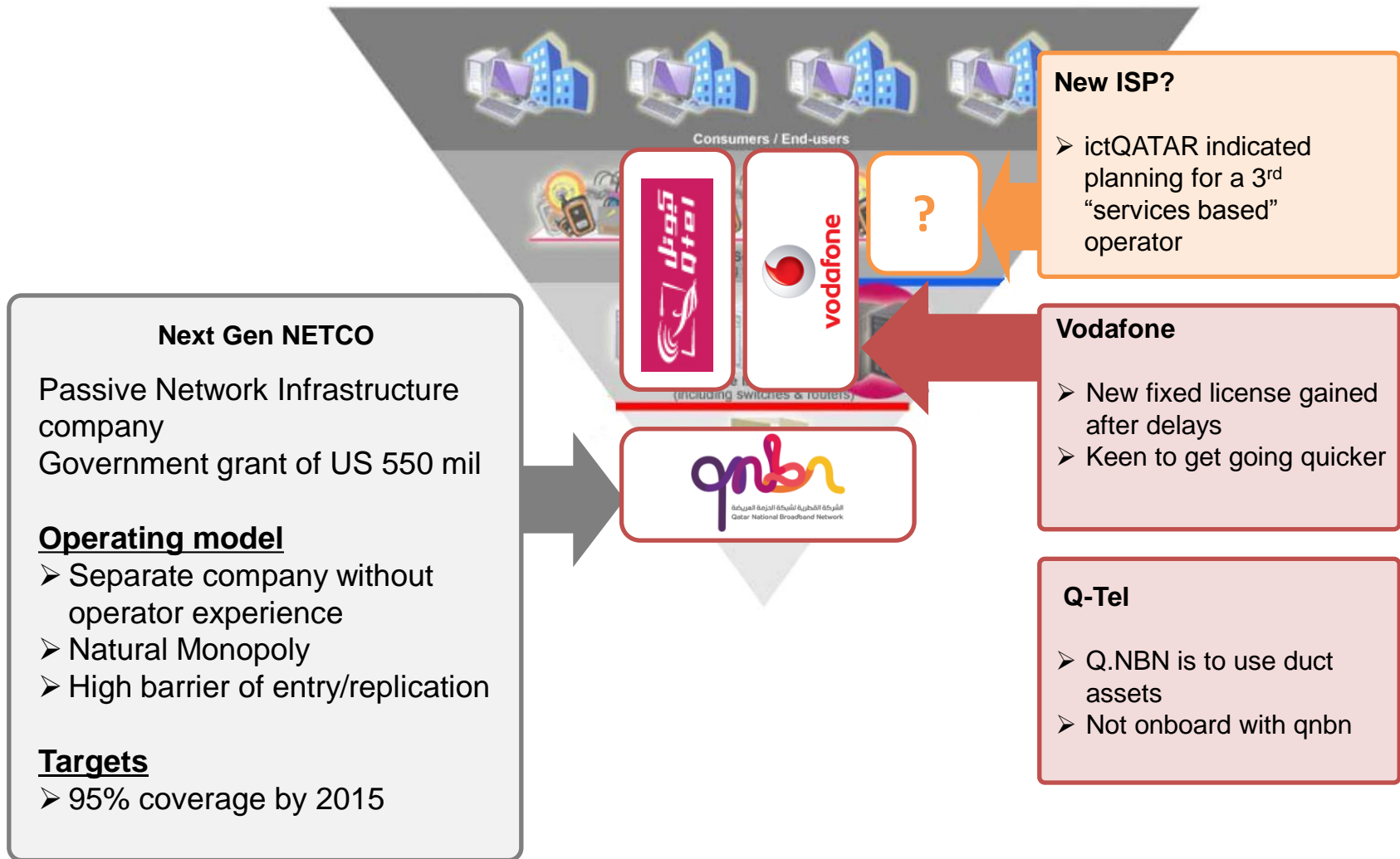
Targets

- 330K residential subs by 2015
- 80K non-residential subs by 2015



NetCo – carefully crafted consortium



Qatar is good example of government support



Comparative analysis – Qatar vs Singapore vs Bahrain

				Notes
Population density (People/km ²)	7,315	151	1,660	Singapore has 3 times more population, urban space is mainly multi-storey buildings
Subsidy per household	\$437	\$1660	?	Higher costs are consequence of different geography and design
Rollout plans (years)	7	4	?	Qatar has very aggressive targets
Model	Independent NetCo & Opco	Government established NetCo	?	Singapore spend 3 years selecting the right model and doing competitive RFP
WEF Networked Readiness rank in 2013/2011/2010	2/2/2	23/25/30	29/27/29	State of various factors related to ICT development

Source: Salience Analysis

Subsidy calculated on the basis of 1,145 K homes in Singapore and 300 K homes in Qatar

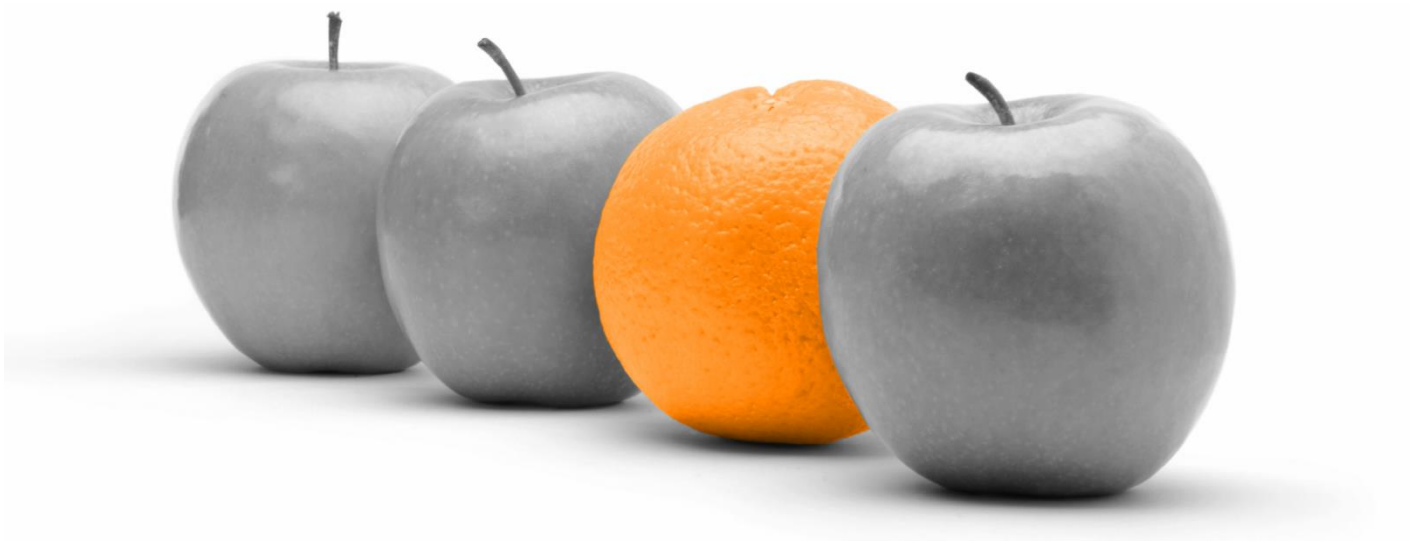
1. Why are governments investing in national fibre network projects?
2. What are the different models available and how they compare?
3. What have others done? Singapore vs Qatar vs Oman
4. How to choose the right model?

Planning is key so do your homework

1. **Analyse your country specific factors** – there is no one-size fits all solution
2. **Create financial business cases** for the various alternatives.
3. **Choose wisely** – importing international experience vs local knowledge, interest of existing players.
4. **Make it big and bold** – plan it around national ICT strategy
5. **Learn from other mistakes** – you could observe why others have succeeded or failed
6. **You don't need all the answers from day one** - Singapore was shaping the framework through its competitive consultation process for years
7. **Implementation needs to be rigorous** – running multiple networks is chaos, digging roads to deploy fibre could be very disruptive
8. **Deployment can be staged and selective** – to ensure demand build up and sustainability of investment
9. **People make things work** – so make sure you have the right team with the appropriate reward structure

salience

consulting



stand out ●

1. Clearly defining the role of the existing players

Incumbent are protective and argue that they should be allowed to maintain their dominant position

The worst outcome is that the NBN is forced to compete with the incumbent operator

Reuse of the existing assets will minimise the government subsidy required

Supply might need review to increase competition

Oman fixed telecom players

عمانتل
Omantel

النورس
nawras

أواسر عمان
AWASER OMAN

Haya
water

Source: Salience

How many players per level



Source: Salience

2. Best fit technology per geotype

Passive GPON deployment is best suited for sparse and SDU housing scenarios

Active Ethernet deployment with CAT5/6 cabling is best suited for denser MDU

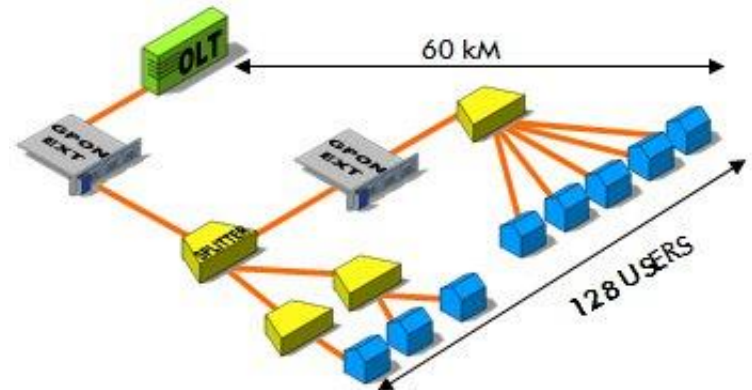
Technologies such as long reach GPON or repeated signal technology might need to be used

GPON vs Active Ethernet

FTTH technology	PROS	CONS
GPON	<ul style="list-style-type: none"> • Passive technology so no active equipment or power requirements • Lower cost of deployment • Low OPEX • Good scalability 	<ul style="list-style-type: none"> • Asymmetric bandwidth • Shared fibre medium with contention ratio at the splitter
Active Ethernet	<ul style="list-style-type: none"> • Symmetric bandwidth provision is more aligned with future user requirements • Familiar LAN based technology • Better support for open access network as separate fibre per user 	<ul style="list-style-type: none"> • Higher cost of deployment • Active elements in street cabinets need power feed and airconditioning • Higher OPEX spend • Less scalable

Source: Salience

Extending the reach of GPON



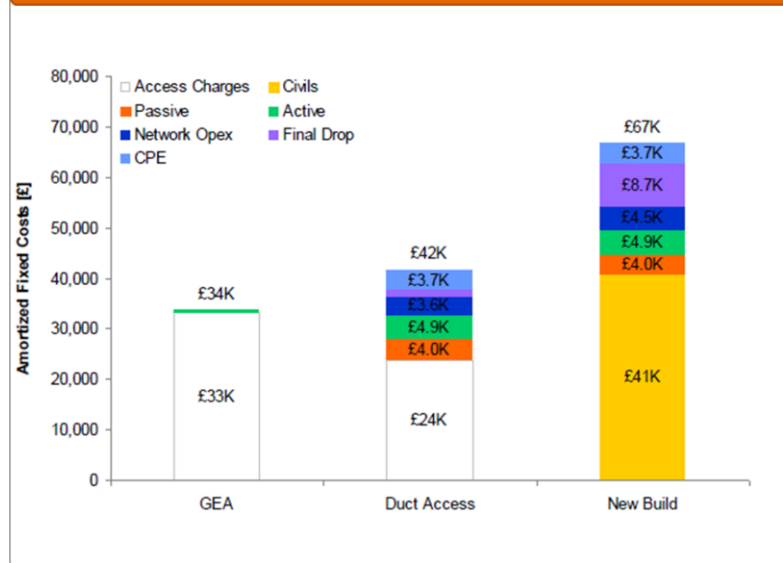
Source: Telnet

3. Active or passive wholesale offer

In most cases active wholesale access as a more attractive and less risky option in the face of uncertain demand.

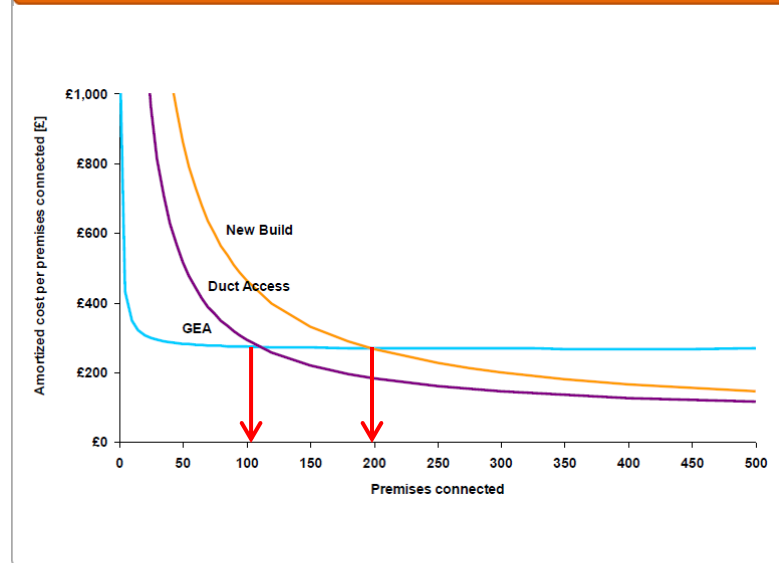
Passive deployments become cheaper per unit only when the take up is high

Cost comparison



Source: CSMG

Take-up vs cost per premises line



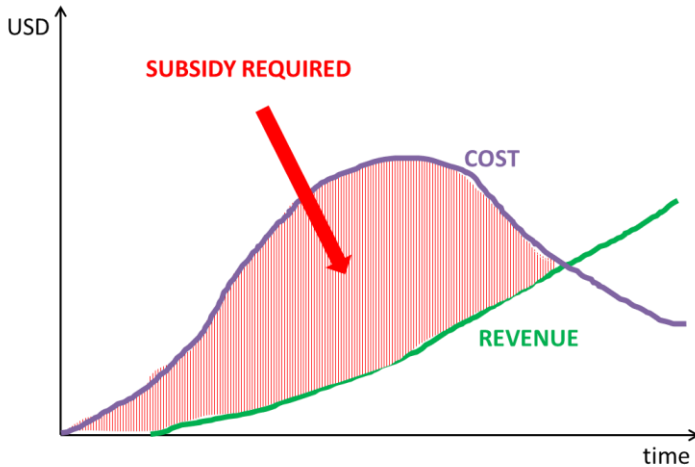
Source: CSMG

4. Calculating the level of subsidy required

Subsidy needs to be sufficient to ensure continued deployment and operation of the NBN company vs revenue collected

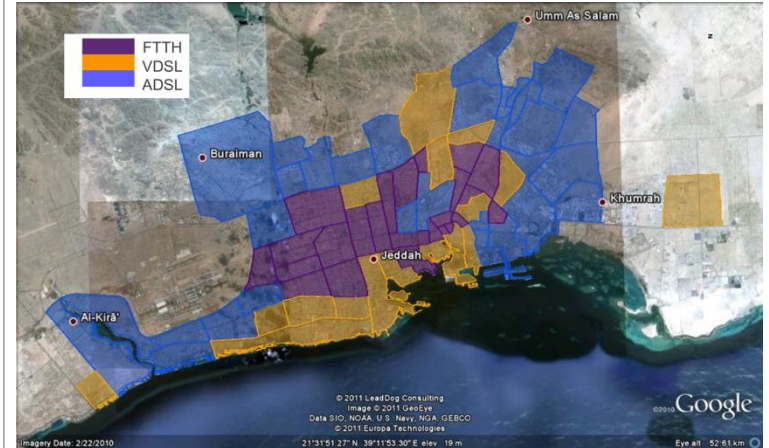
With case by case business analysis Oman could do selective deployment based on demand growth vs cost per urban area

Subsidy calculation



Source: Salience analysis

Per zone financial analysis



Source: Salience case study

5. Shortage of skilled workers

NBN deployments require large nationwide roll-out resources to be deployed, which is very different from the levels of field force engineers that are kept by the telecom operators for normal O&M purposes.

Skills shortages have resulted in schedule delays and inconsistencies in design.

In Australia, during the initial deployment phases, only 50% of the roll-out targets were met due to skills availability issues.

FTTH skills set list

- Fibre splicing
- Blowing fibre
- Optical OTDR fibre testing



Source: Salience analysis

Australian NBN deployment scale



Source: NBN Australia