

Towards License-Exemption of Whitespace TV Frequencies

**Keynote to ITU Radiocommunication Seminar
for Arab Countries (RRS13-Arab)**

Tunis, Tunisia

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Key Messages

(Outcomes driven policy making)

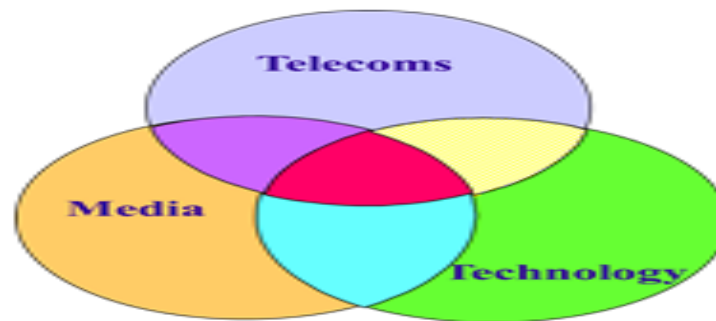
- **Widespread (access) and Affordable mobile Internet and broadband for Emerging Market African Countries particular, and the next 5 Billion unconnected**
- **TV Whitespaces** MUST be CONSIDERED a key part of the story and priority in order to achieve widespread and affordable mobile Internet and Broadband for African, some Latin-American and Asian countries
- **More license-exempt spectrum, particularly sub 1-GHz would be invaluable for last mile access in particular, and access and affordability of Broadband Internet in general to connect the next 5 Billion**
- **The licensed vs. licensed-exempt (which is better) argument is passe! WiFi has proven conclusively that we need both!**

These are independent views argued
in this forthcoming book!

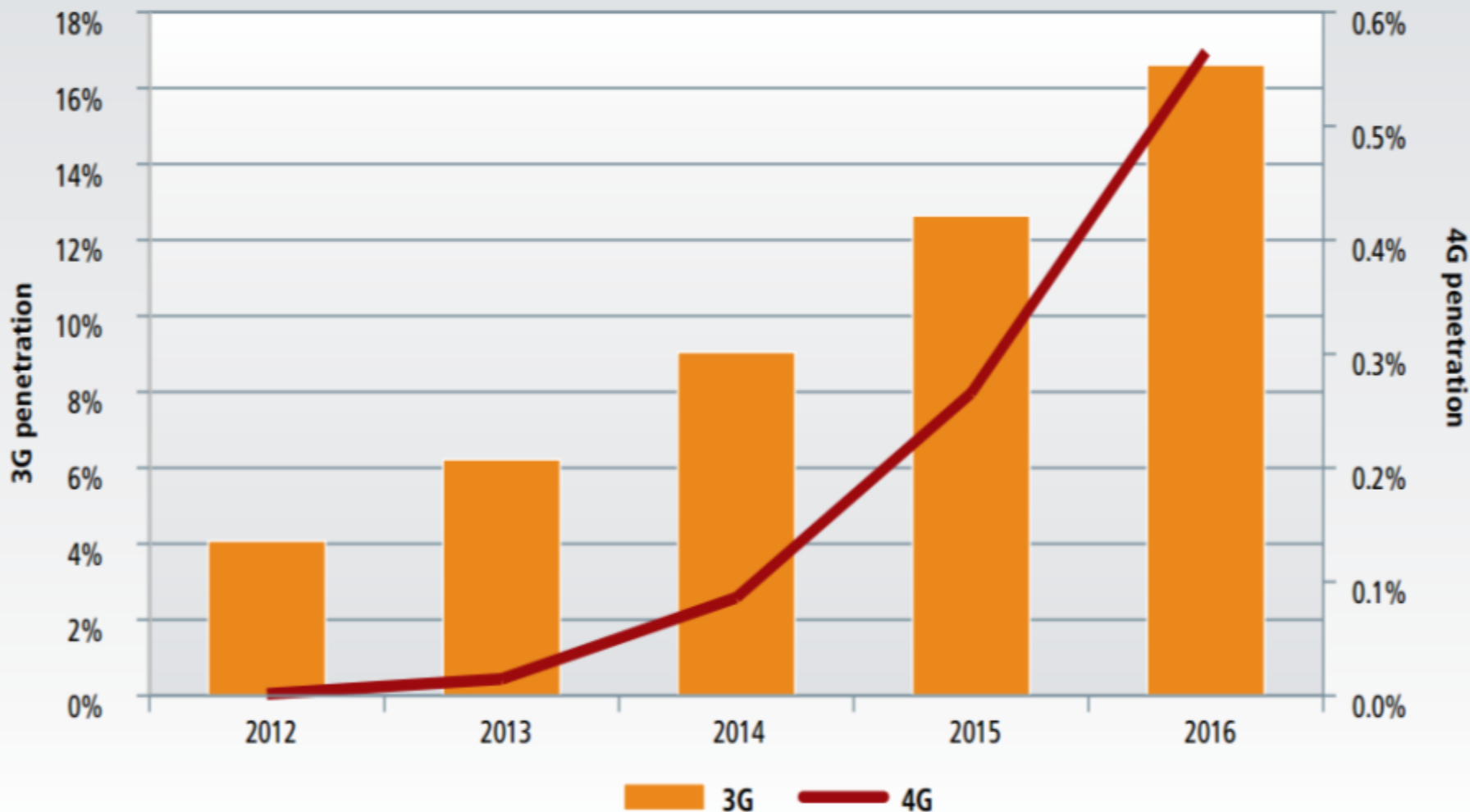
Telecommunications, Media and Technology (TMT) for Developing Economies

**~ How to make TMT Improve Developing
Economies in Africa and Elsewhere for the
2020s ~**

**Professor H Sama Nwana
DRAFT 1.0**

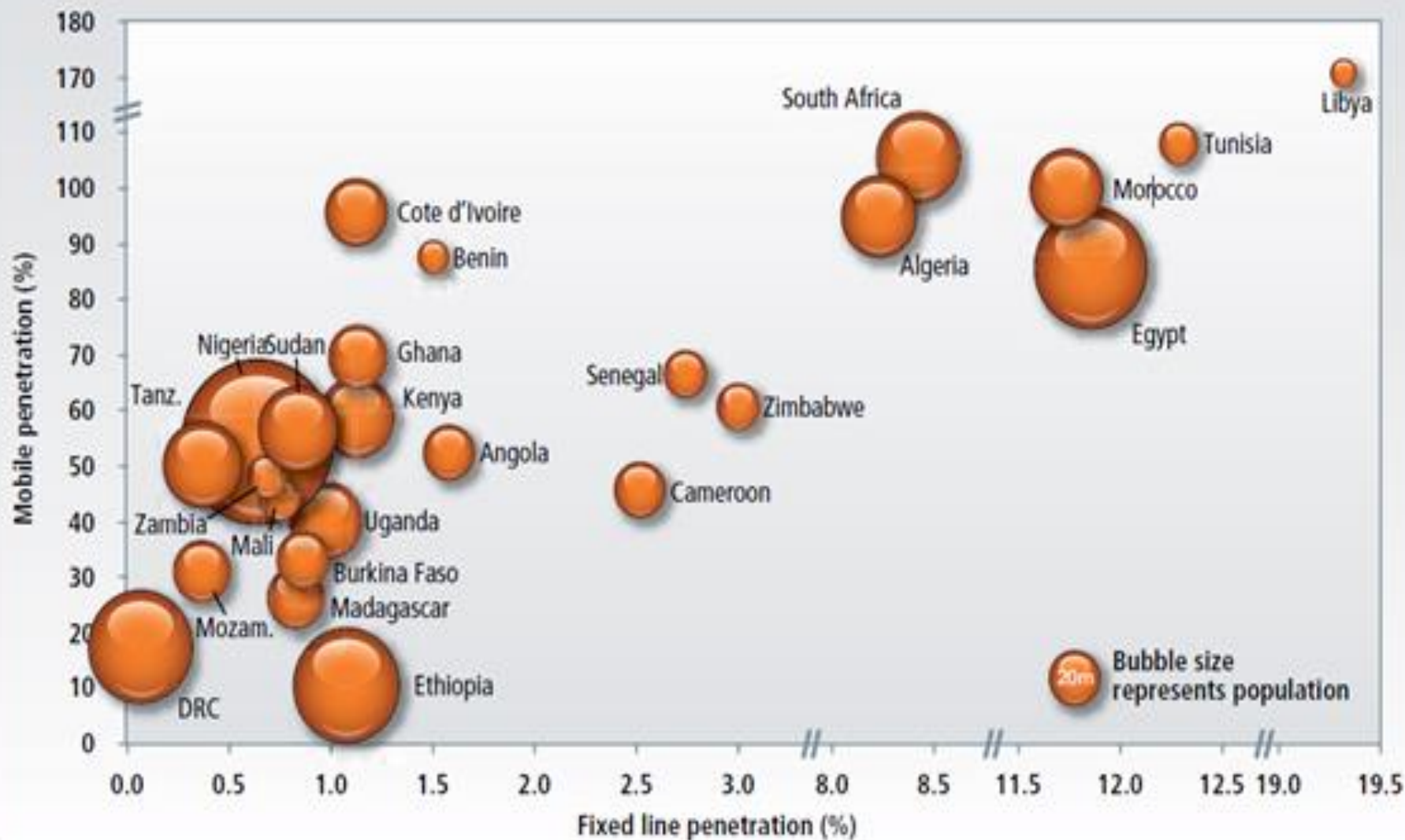


African mobile BB is woeful

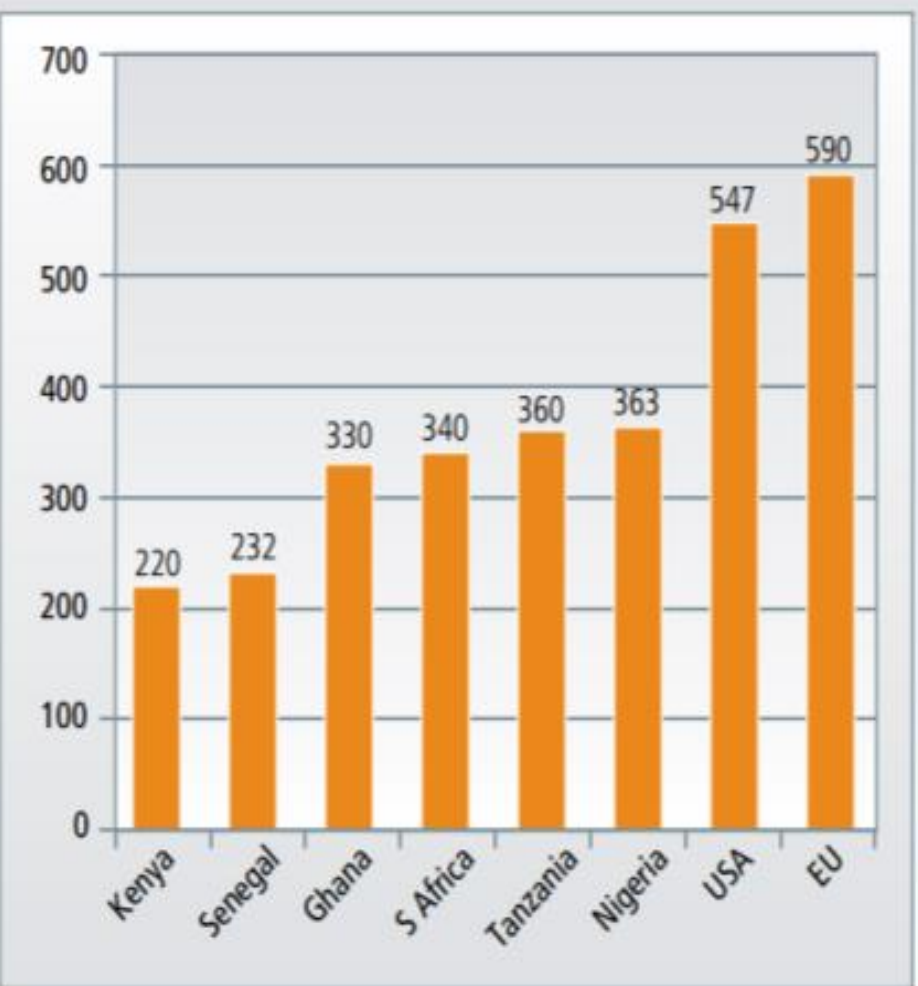
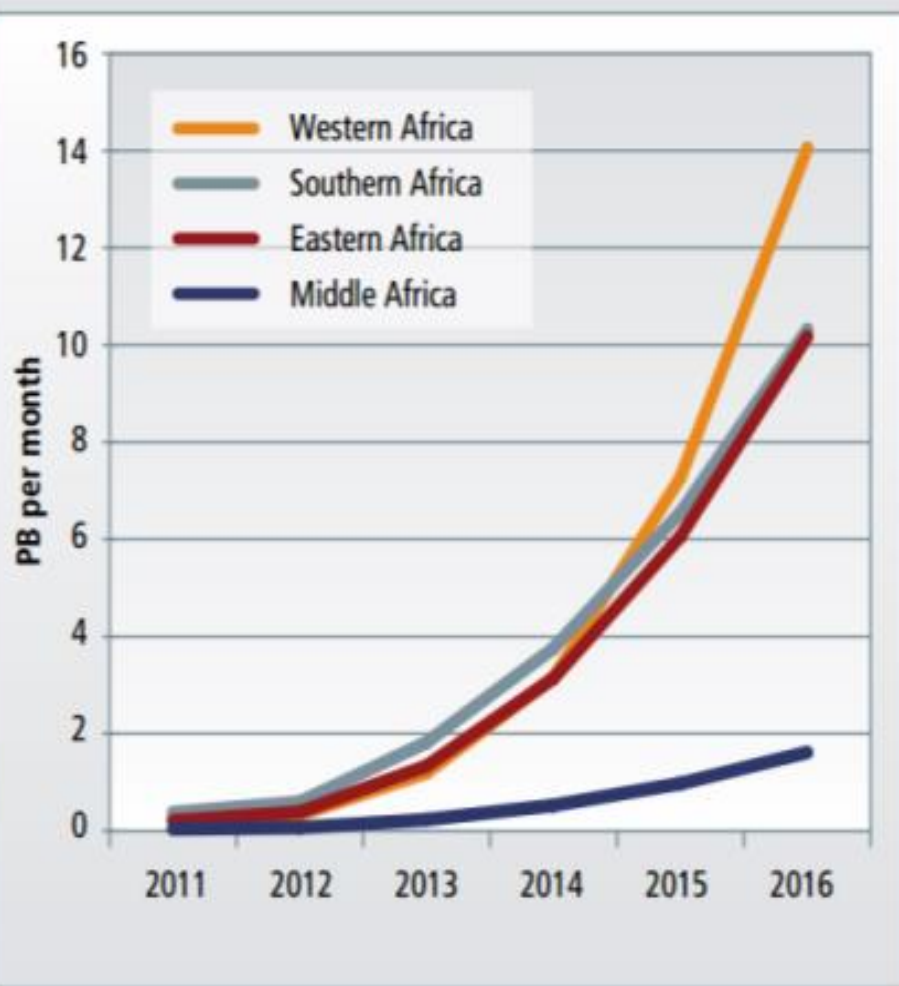


Fixed is non-existent!

(Source - SMA Mobile Observatory 2011)

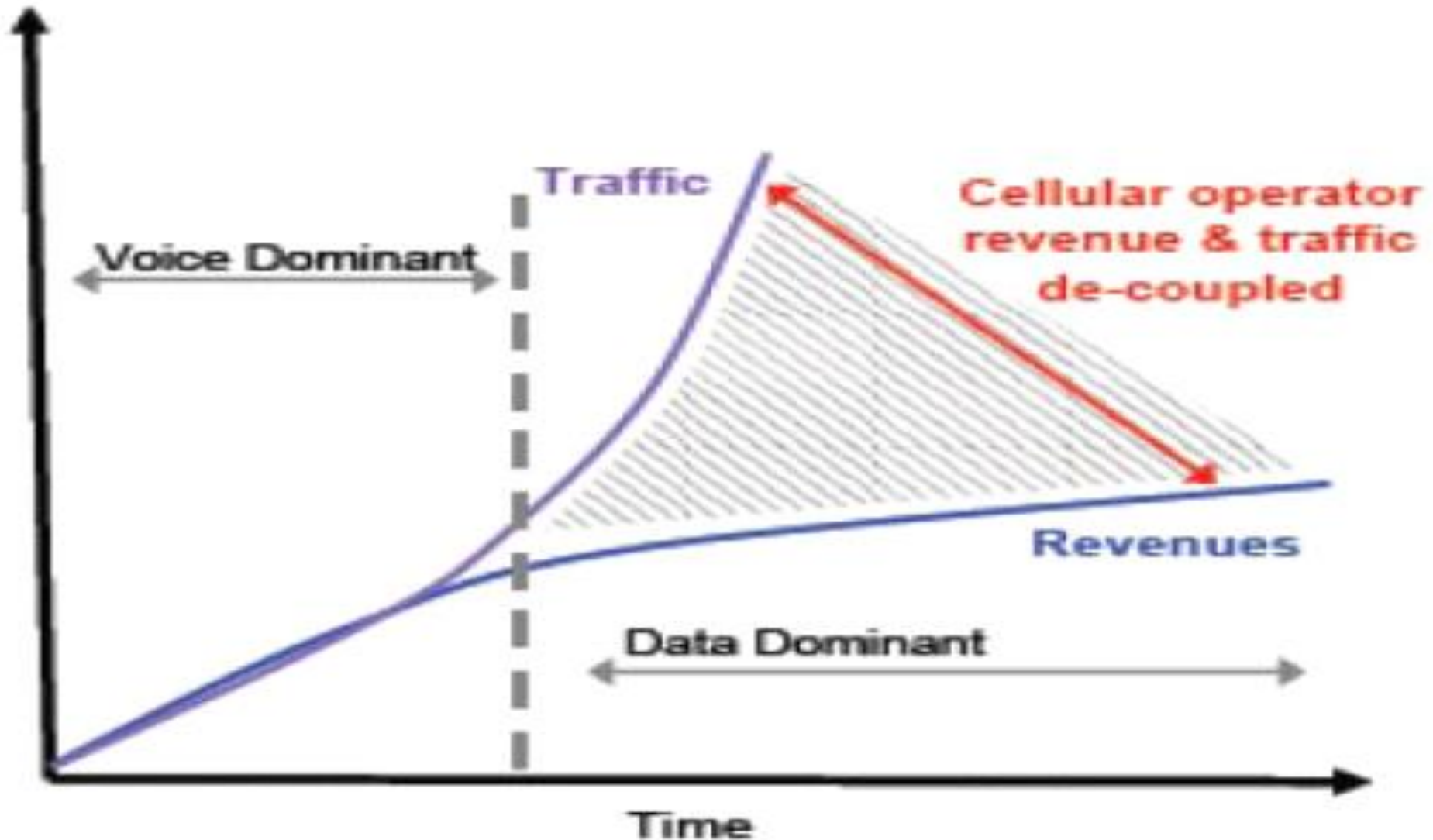


More spectrum needed in Africa (even more as no last mile! –license-exempt spectrum too)



Source: Wireless Intelligence and Deloitte analysis

Squaring naked mobile with \$1 - \$8 ARPUs limits market solns



License Exempting Spectrum is good (e.g. WiFi)

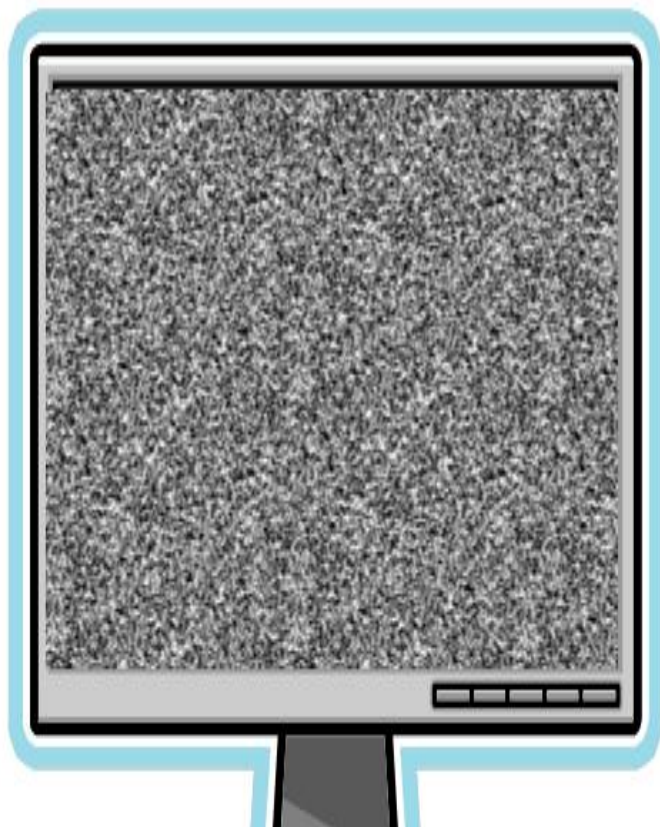
- ✓ License –exempting spectrum has a very good history of creating substantial value to society for only tiny bits of spectrum, e.g. WiFi
- ✓ By end 2011, 25% of homes worldwide use WiFi (Strategy Analytics)
- ✓ Thanki (2012) notes that by “enhancing the value of fixed home BB, WiFi generates US \$52-99B of consumer surplus each year!
- ✓ Without this, Thanki notes the value of fixed BB will be far less and would result in disconnections of 50 to 114M fixed lines across the world
- ✓ He estimates a range of \$69M to \$901M for estimated 0.5 to 1M WiFi connections in Africa
- ✓ Absent WiFi, 140K to 450K extra sites would be needed at a cost of US \$30 to \$90 Billions

License Exempting sub-1Ghz would add billions more value too

- ✓ Why? Africa has no fixed lines – virtually!
- ✓ The last mile in Africa will be virtually all radio
- ✓ The African case for license-exemption of sub-1GHz spectrum is very strong then
- ✓ In general – the easy low-hanging fruit first 2.6 Billion people are already commercially connect. The rest become more and more challenging
- ✓ New business models (which require low-cost spectrum and low power) demand license exemption or light licensing
- ✓ The middle/last 6 to 8 miles covered by LE TV whitespace in addition WiFi covering the last 100 metres to several hundred metres

TV Whitespaces-based Rural Broadband is Vital for Africa and next unconnected

NOTHING



TVWS

HIGH SPEED INTERNET



The rural middle miles can be licensed exempt too

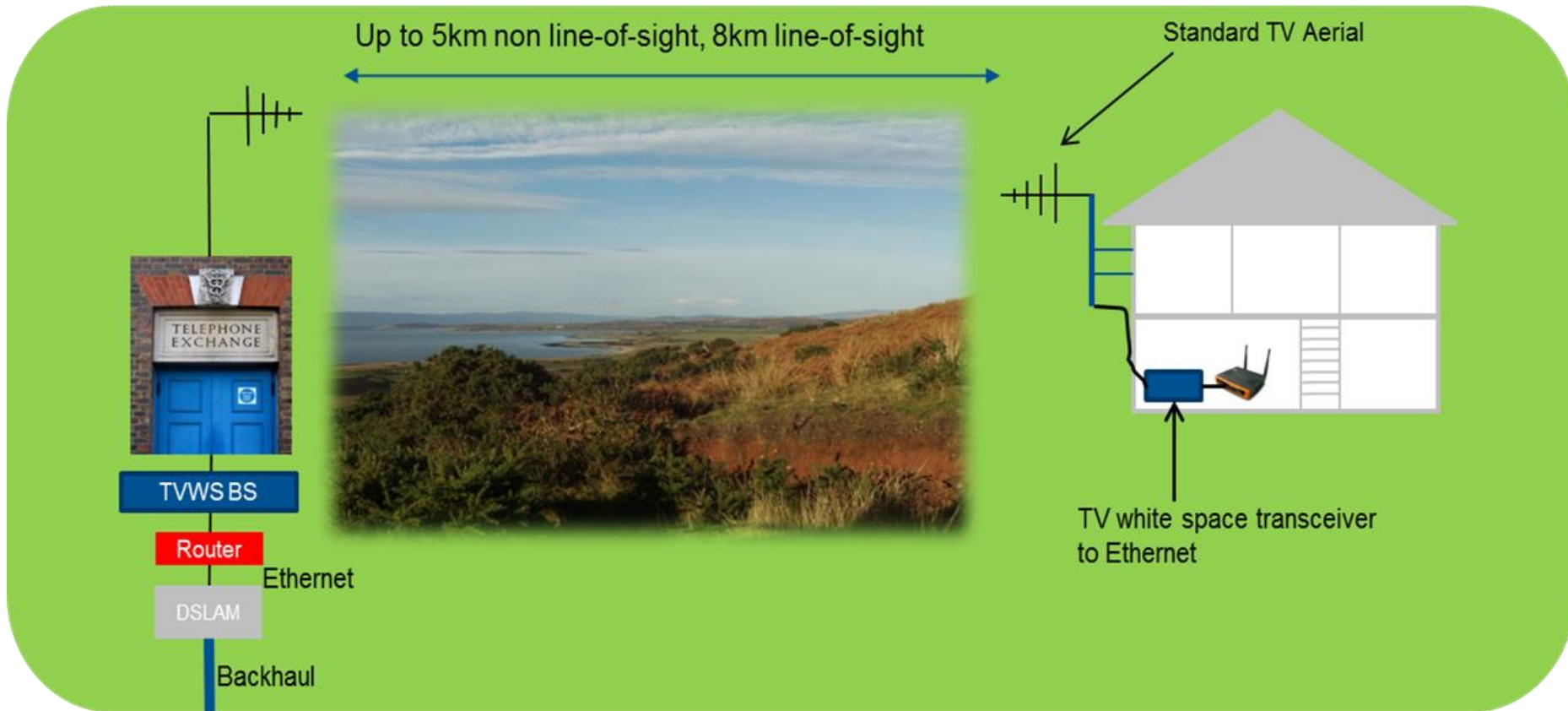
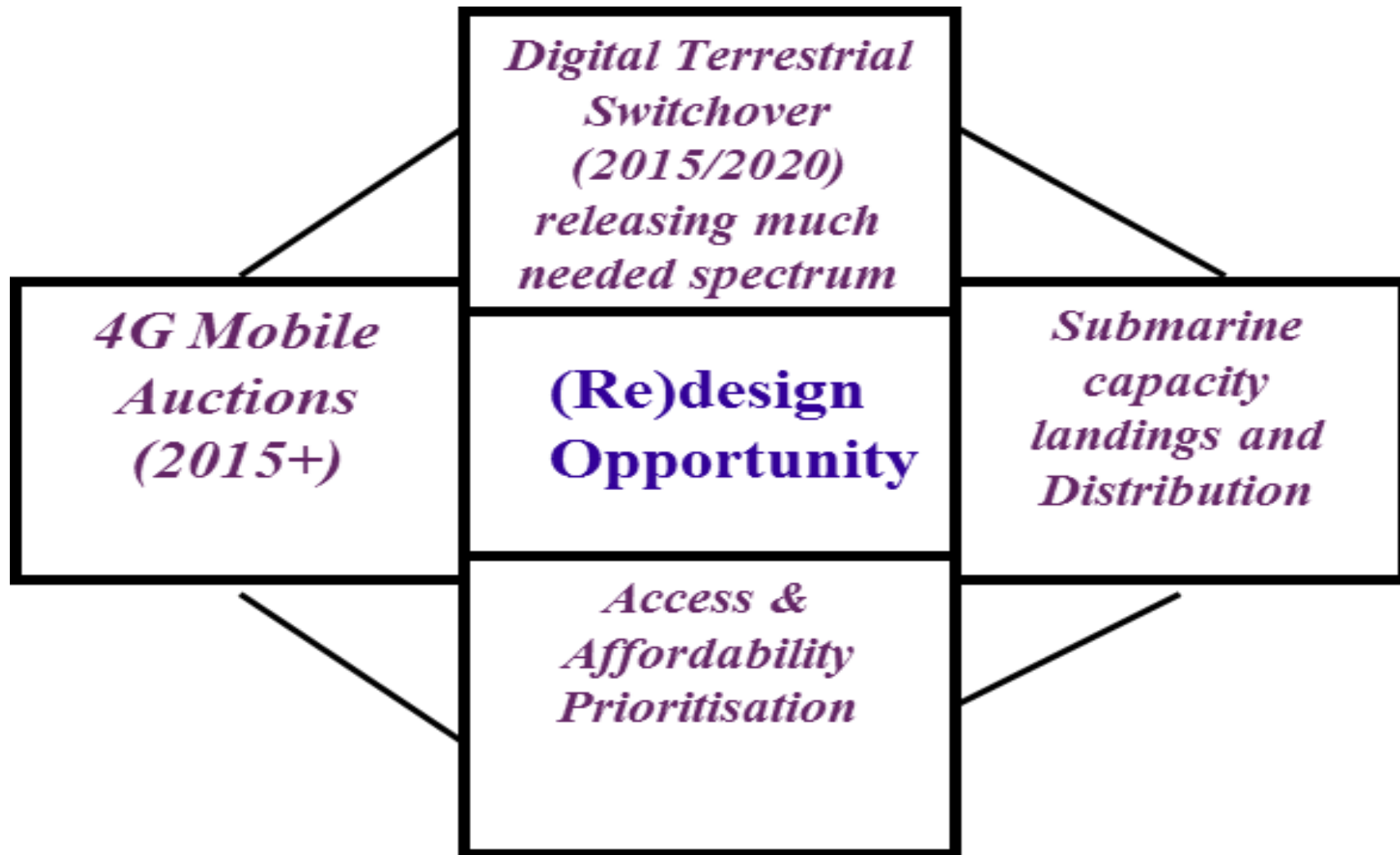


Figure 42 – Typical Rural Broadband Use case
Source: Isle of Bute White Space Trial, Scotland, UK

We need to license-exempt soon so as to achieve MDG goals



Very few terrestrial TV channels on air anyway

UHF ASSIGNMENTS

Channel	UHF Band		Operator	Frequency Assigned (MHz)	Location	
	Video Carrier	Audio Carrier				
21	471.25	476.75				
22	479.25	484.75				
23	487.25	492.75				
24	495.25	500.75				
25	503.25	508.75	CFC	503.25/508.75	Blantyre	
26	511.25	516.75				
27	519.25	524.75	ABC	519.25/524.75	Lilongwe	
28	527.25	532.75				
29	535.25	540.75				
30	543.25	548.75				
31	551.25	556.75				
32	559.25	564.75				
33	567.25	572.75				
34	575.25	580.75				
35	583.25	588.75				
36	591.25	596.75				
37	599.25	604.75				
38	607.25	612.75				
39	615.25	620.75				
40	623.25	628.75				
41	631.25	636.75				
42	639.25	644.75				
43	647.25	652.75				
44	655.25	660.75				
45	663.25	668.75				
46	671.25	676.75				
47	679.25	684.75				
48	687.25	692.75				
49	695.25	700.75				

Figure 39 – UHF Assignments in Malawi as of May 2013

Source: Malawi Communications Regulatory Authority (MACRA)

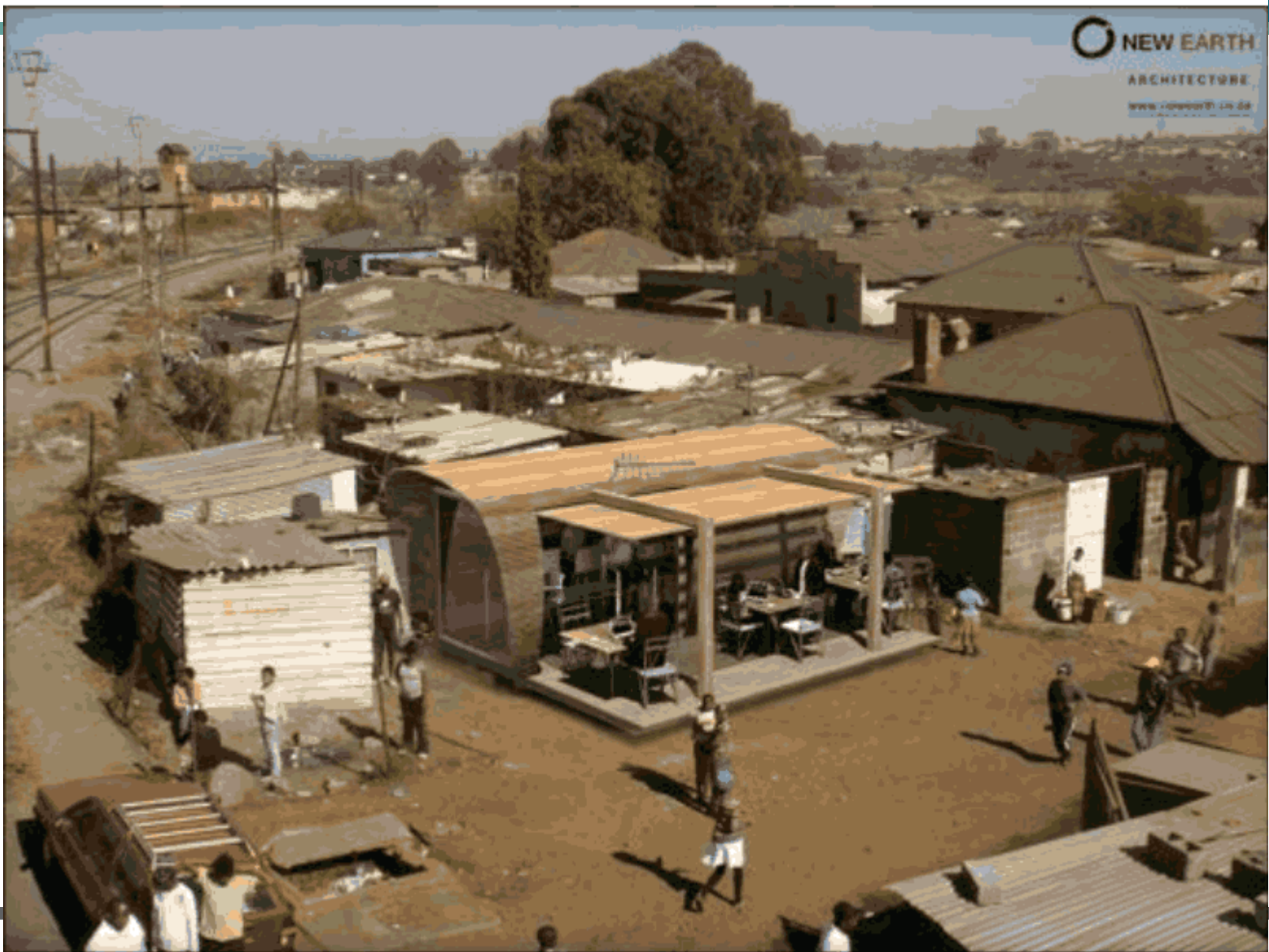
Education is a key driver for BB



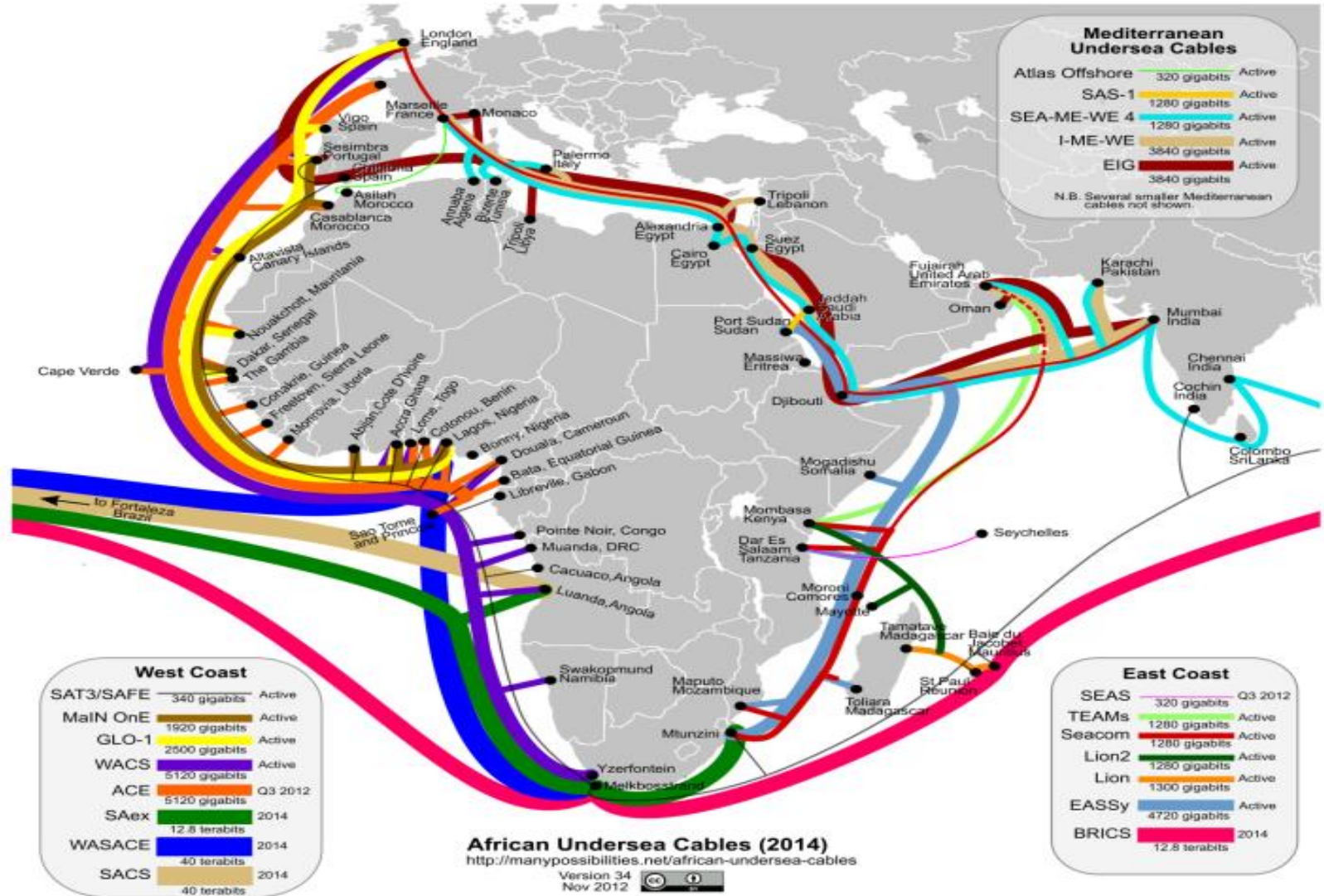
Gakawa, Nanyuki, Kenya



New entrepreneurs – jobs!



Terrabytes by 2014 – must deliver for the MANY, not the



Conclusions: let “religion” not get in the way of desired consumer outcomes

- ✓ License-exemption of frequencies sub-1GHz would be good for Africa and for the next 5B BB-unconnected.
- ✓ This ex-Senior Regulator is going around making this argument to all African and Emerging Economies’ Regulators
- ✓ Individual country regulators – taking their duty to “optimal” use of spectrum and meeting broadband plans are beginning to listen
- ✓ TV whitespace spectrum has little opportunity cost in Africa and many rural areas at that
- ✓ A Developed market spectrum view ONLY will constrain the emerging markets in places like Africa
- ✓ Let’s NOT let the best be the enemy of the good

- ✓ Prof Nwana is Founder and Director of Atlantic Telecoms & Media, a UK-registered consultancy specialising in emerging markets TMT
- ✓ Professor H Sama Nwana - Visiting Professor to Brunel University, West London. Professor at Bristol University too. Hails from Cameroon, West Africa.
- ✓ Just concluded 4 years as Group Director, Spectrum, - and Member of Executive Board of Ofcom; Member of Ofcom Policy Executive at UK Regulator
- ✓ H has just completed leading the auction of UK 4G auction which raised £2.37 Billion in February 2013
- ✓ Previously Managing Director at Arqiva (UK's broadcast transmission & infrastructure provider) – £220M Product P/L
- ✓ Previously Executive Director at Quadriga where he was credited with turning around the fortunes of this £75M European company.
- ✓ Holds an MA from Queen's College Cambridge, a PhD and MSc (Dist) from Aston University, BSc. from University of Birmingham and an MBA (with Distinction) from London Business School.
- ✓ Also worked for British Telecom Plc and taught at the Universities of Liverpool, Keele and Calgary (Canada).
- ✓ H was Chairman of UK Ofcom Spectrum Clearance & Clearance Programme (a £300M programme)
- ✓ H was Senior Responsible Officer (SRO) for the 61/62 DSO Clearance Programme – and played a significant role in the Digital Switchover process in the UK
- ✓ H is also on the Advisory Panel (Regulatory) of the Commonwealth Telecommunications Organisation, based in London
- ✓ H is currently writing a book: TMT for Developing Economies: How to make TMT improve Developing Economies in Africa & Emerging Markets for the 2020s