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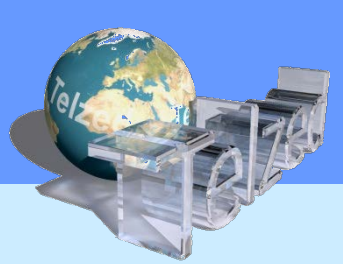

Regional Seminar on Costs and Tariffs for Member Countries of the Regional Group for Africa (SG3RG-AFR)

Cairo Egypt 4-5th February 2013

Strategies for the deployment of NGN and NGA in a broadband environment - regulatory & economic aspects

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Agenda

- Introduction to the author
- Background to the study
- What are NGNs and NGAs – broadband definitions
- Economics – why broadband is required
- The critical questions
- A top down approach to strategy

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- The ITU paper's key messages are further developed in Session 4, which looks at stimulating demand, and getting solutions that work

Telzed & Roger Steele: 30 years of international experience in telecommunications

Cost and profit model analysis	Bottom up, top down, FAC, LRIC, ABC, fixed/mobile/access networks, NGN/NGA, for commercial & regulatory management
Regulatory accounting	Accounts production, review/approvals, current cost accounting (CCA), cost model reviews
Regulatory policy and economics	Tariff approvals/price controls, regulatory submissions, regulatory strategy, wholesale product analysis, consultations, benchmarks
Financial & business analysis	Price setting & price controls, due diligence, license applications, strategy support, MVNOs, SIM boxes
Complex problems	Technical/financial analysis, legal arbitrations, expert witness, market demand modelling, network outsourcing & service procurement for corporates

Telzed provides a combination of business, economic, regulatory, financial and technology skills.

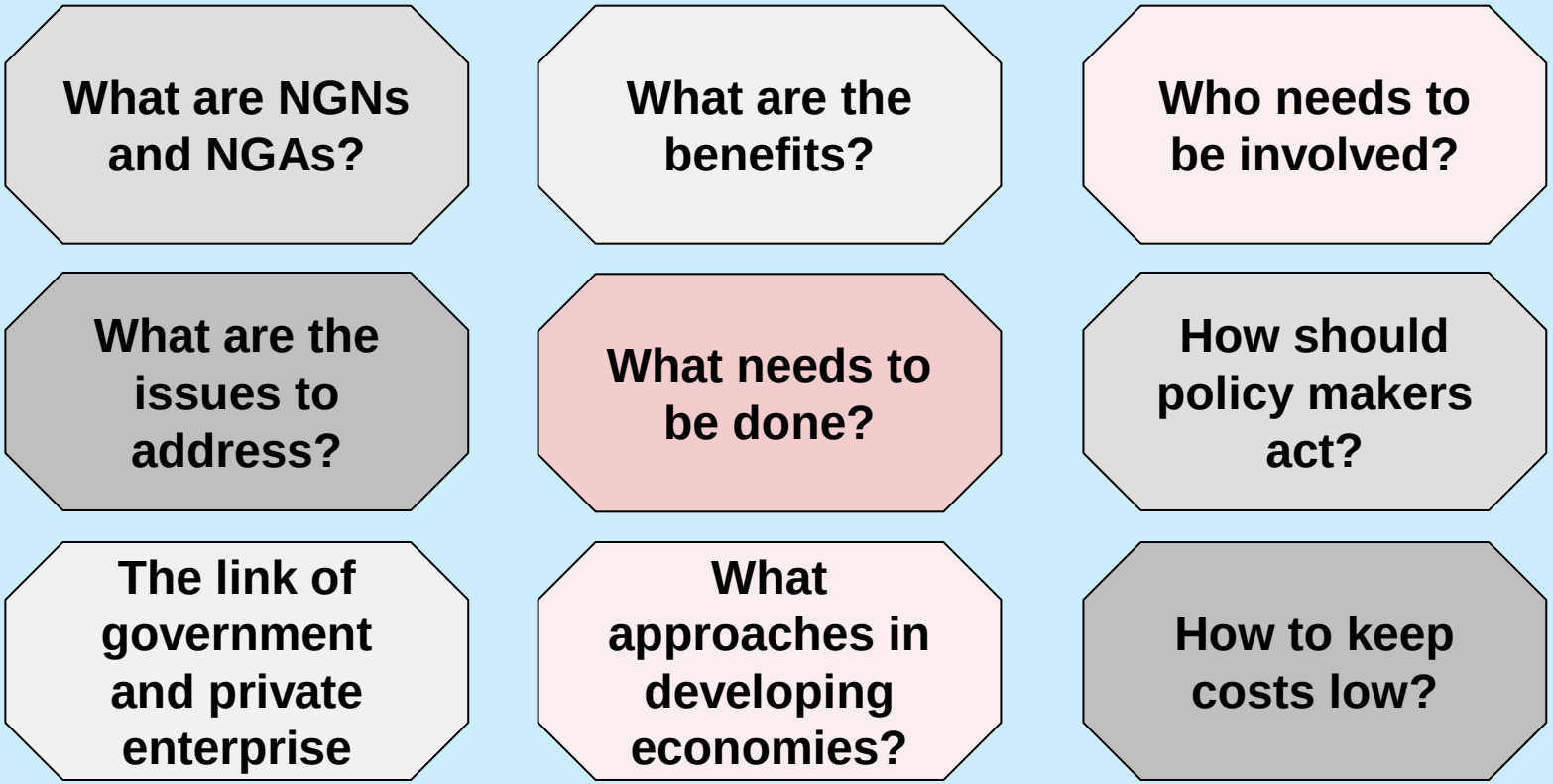
Roger has worked in Egypt, Sudan, Jordan, Palestine, UAE, Bahrain, Oman, Qatar, South Africa, Mexico, Hong Kong, Korea, Singapore, the Kingdom of Saudi Arabia, and extensively across Europe

Background to the study

- The ITU has developed a series of papers and seminars related to regulation, pricing, funding and policy approaches to help countries develop their telecoms services
- A major focus in recent years has been on Next Generation Networks – what are the challenges and benefits from the new telecoms technologies
- To assist with this programme, a paper that looks at the higher levels strategic issues, the economics and fundamental issues was sponsored
- This broadband strategy paper should be considered alongside other ITU studies
- The study's purpose is to provide insights to help develop national strategies and regulatory approaches towards broadband that will benefit the telecoms industry, consumers and all businesses that make use of telecoms services

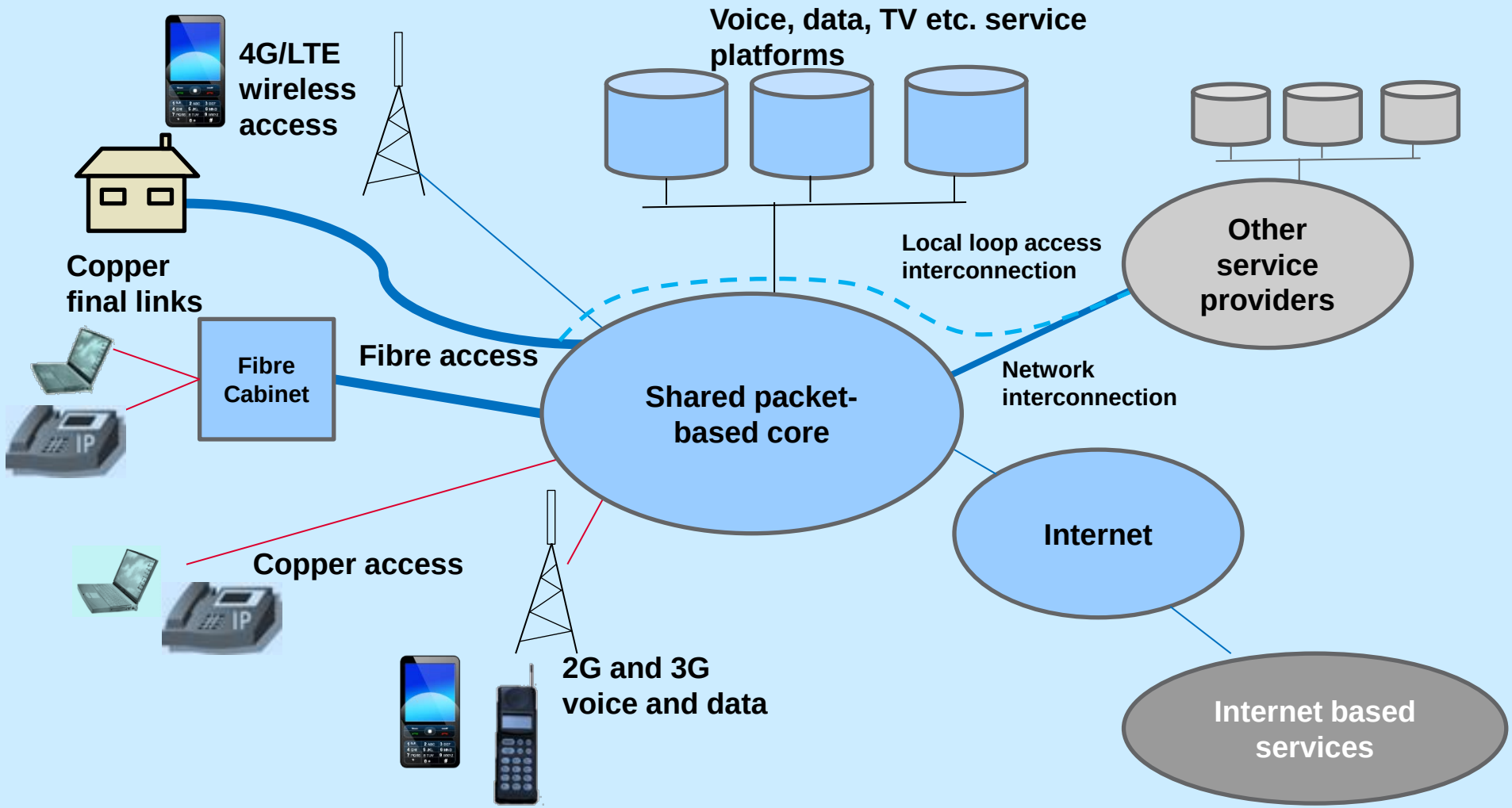
http://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Studies.aspx Strategies for the deployment of NGN and NGA in a broadband environment – regulatory and economic aspects

Questions to answer



- Some of the answers will be developed in the later session
- We will not attempt to cover how to obtain the funding

Next generation networks



What is an NGN?

- A single packet based network what carry multiple services. The service provision is not *part of* the network's internal systems. No need for multiple networks
- **Access:** access technology (fibre, copper or wireless and combinations) deployed in the "local loop." Typically characterised by higher bandwidth and greater symmetry in speed than purely copper-wire access
- **Core:** core network is IP based and is characterised by replacement of legacy transmission and switching equipment with IP technology in the core, or backbone network. Involves changing telephony switches and installing routers and VoIP gateways.
- **Services**: new structures in a NGN environment. Often not fundamentally new services but are now much faster/better and not "part of the network" because a *shared* network now delivers all of the services

What is broadband?

- Access to services at multi-megabit/s speeds
- Can be over fixed lines or over mobile networks. Also fixed wireless access (but this is less common)
- Up to ~10Mbits/s using copper technology or 3G mobile
- >> 10Mbit/s using fibre to the premises or fibre to the cabinet plus copper wires for the “last link” to the premises. Might use wireless for the last link to customer. Cable TV networks also use fibre, plus coaxial copper
- > 10Mbit/s using LTE (4G) mobile technology
- **Superfast** broadband: >30Mbit/s. Mostly fibre all the way. 1Gbit/s is possible.
- Broadband *enables* the services: Internet access, TV, voice

Benefits of broadband: you can do a lot with it!

Internet access!

TV

YouTube

Facebook

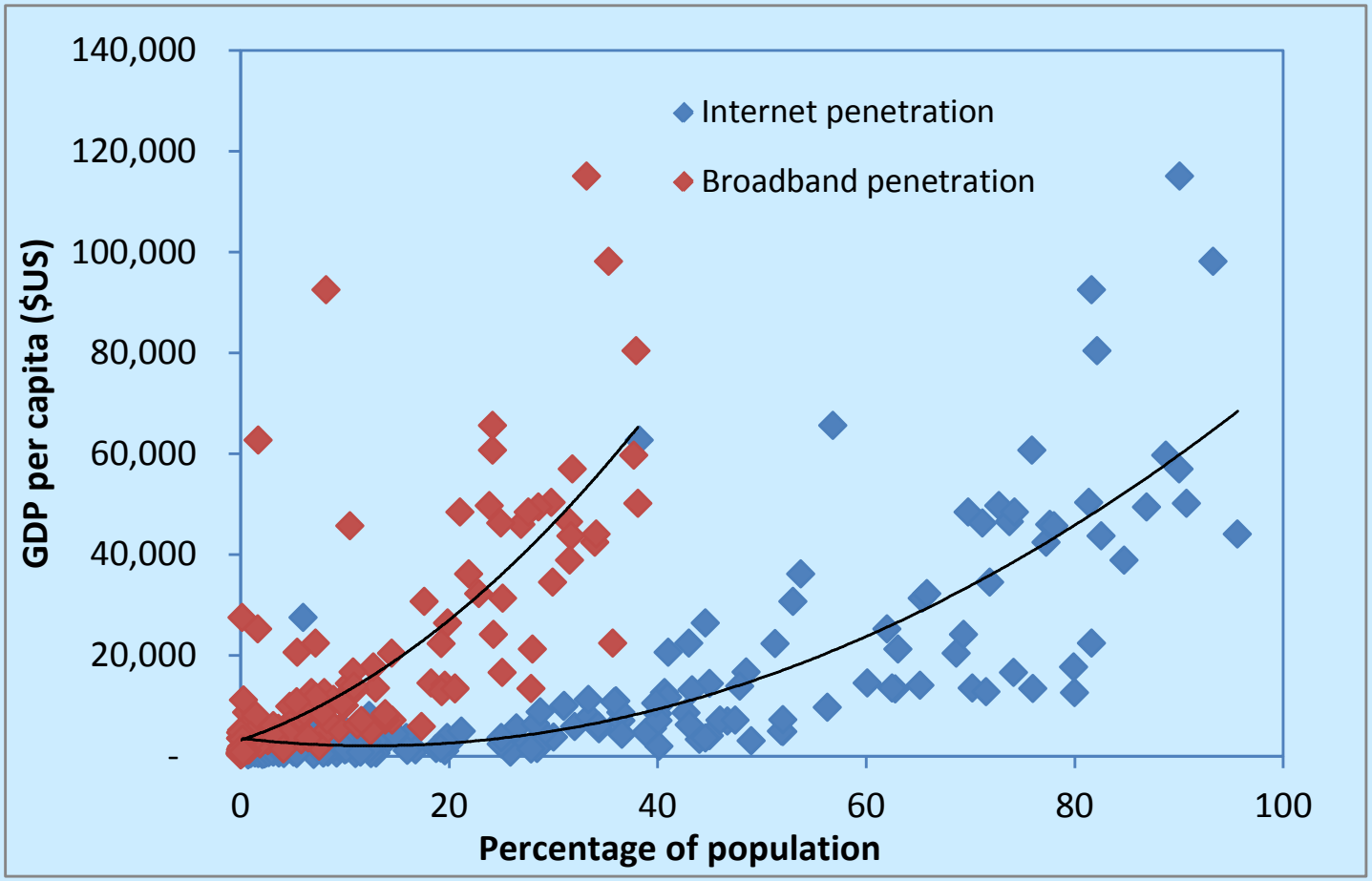
Video on demand

Additional cost of voice is low

Access to information and government services

- Nice things to have and fun to use
- But are consumers and the national economy really any better off? These services are possible without NGN, so why bother?

National wealth *is* related to Internet and Broadband usage



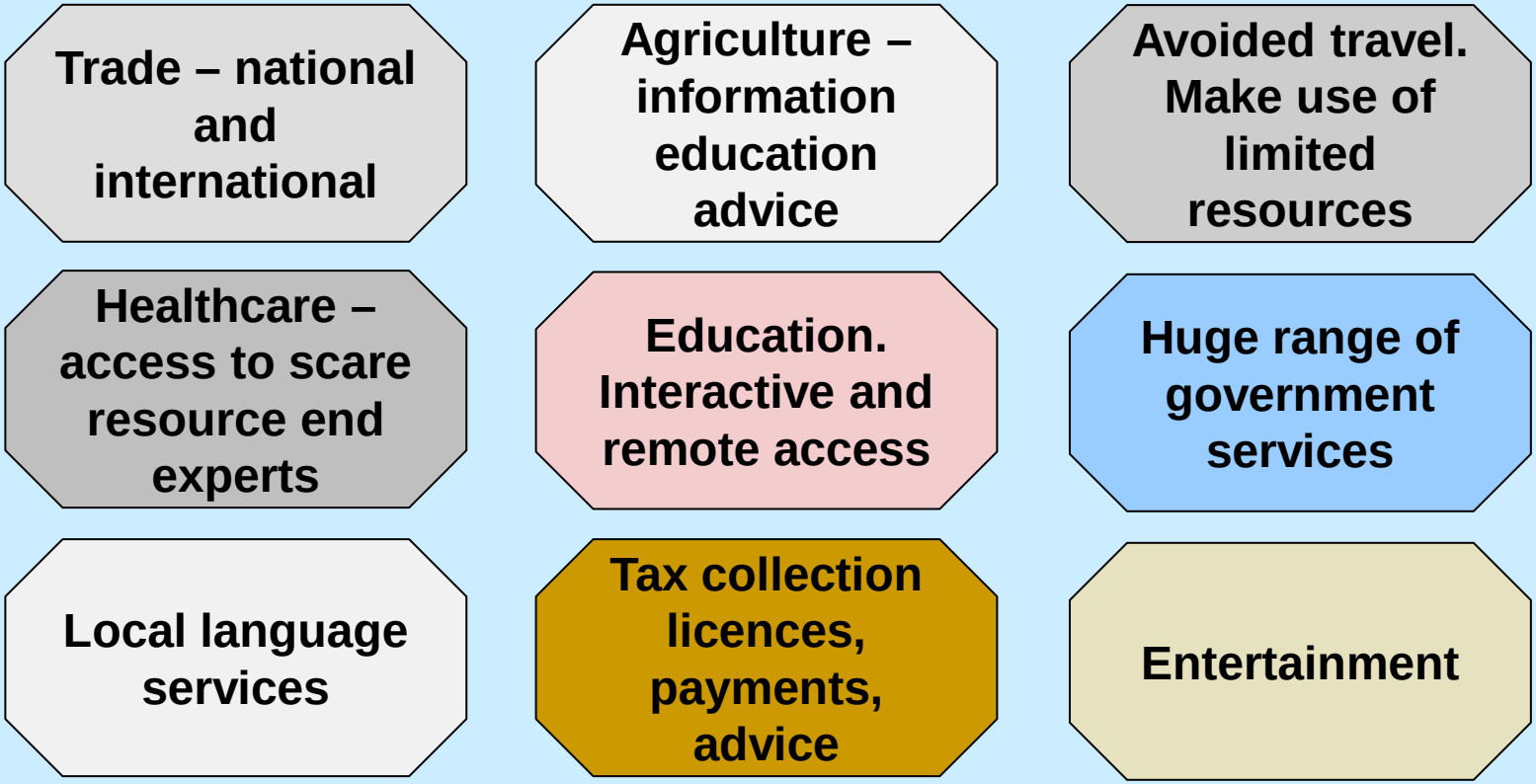
Source: ITU and World Bank data & Telzed analysis

- More broadband is good

Broadband and the economy. It should be taken as a basic assumption that broadband helps the country

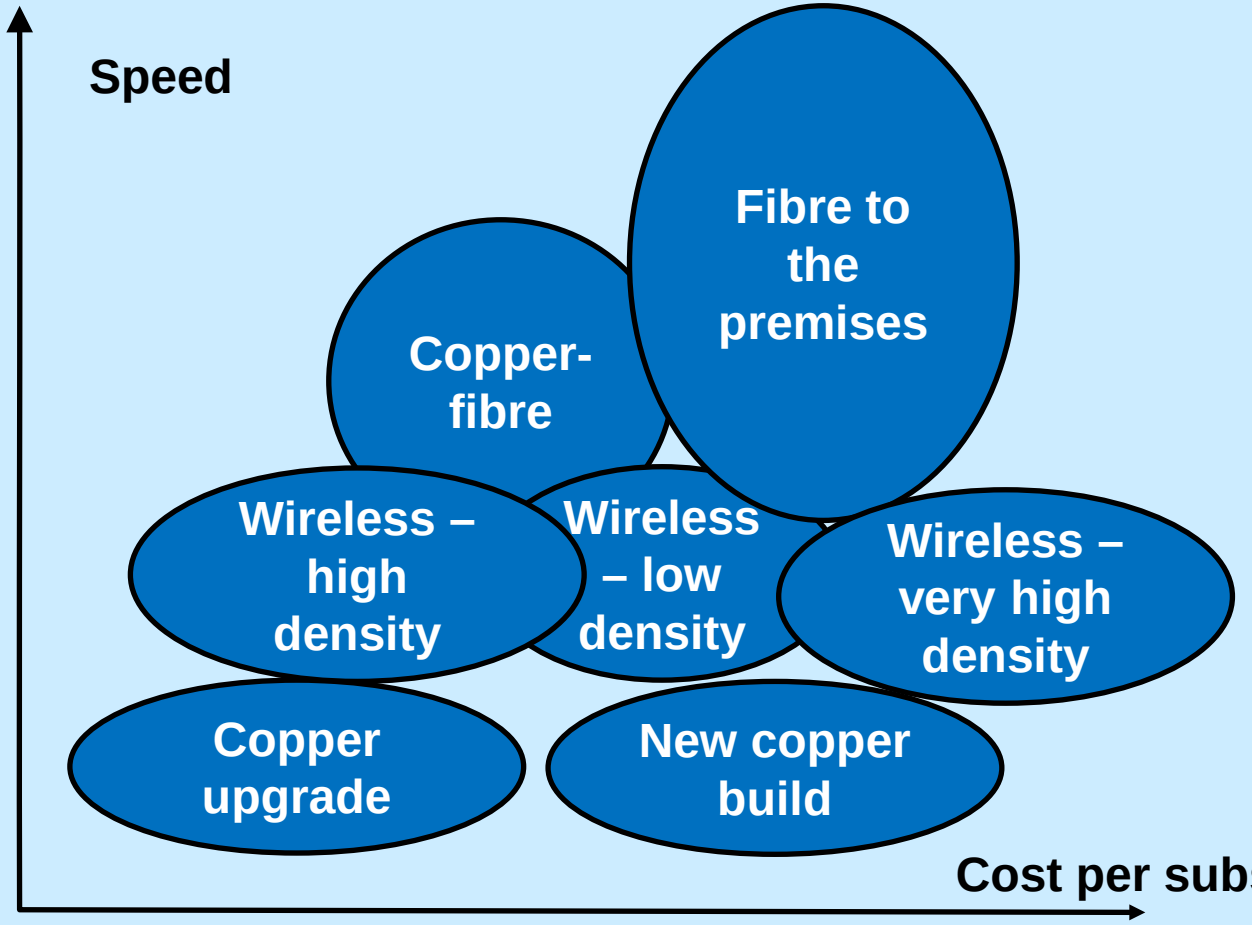
- Similar to basic telephony, having the service helps the economy
- Note how even having a basic phone enabled trade and business
- Broadband has similar effects
- The correlation of GDP with broadband is *causally* related. Contrast: higher GDP is probably related to numbers of Ferraris, but more Ferraris do not help the GDP!
- Natural logic. Broadband access: increases communications and trade; reduces travel; allows home/remote working; creates more efficient ways of working etc. and all increase the national economy
- *Some* studies suggest a synergy. The % increase in GDP with a percentage increase in broadband, increases with penetration

Benefits of broadband come from how it is used



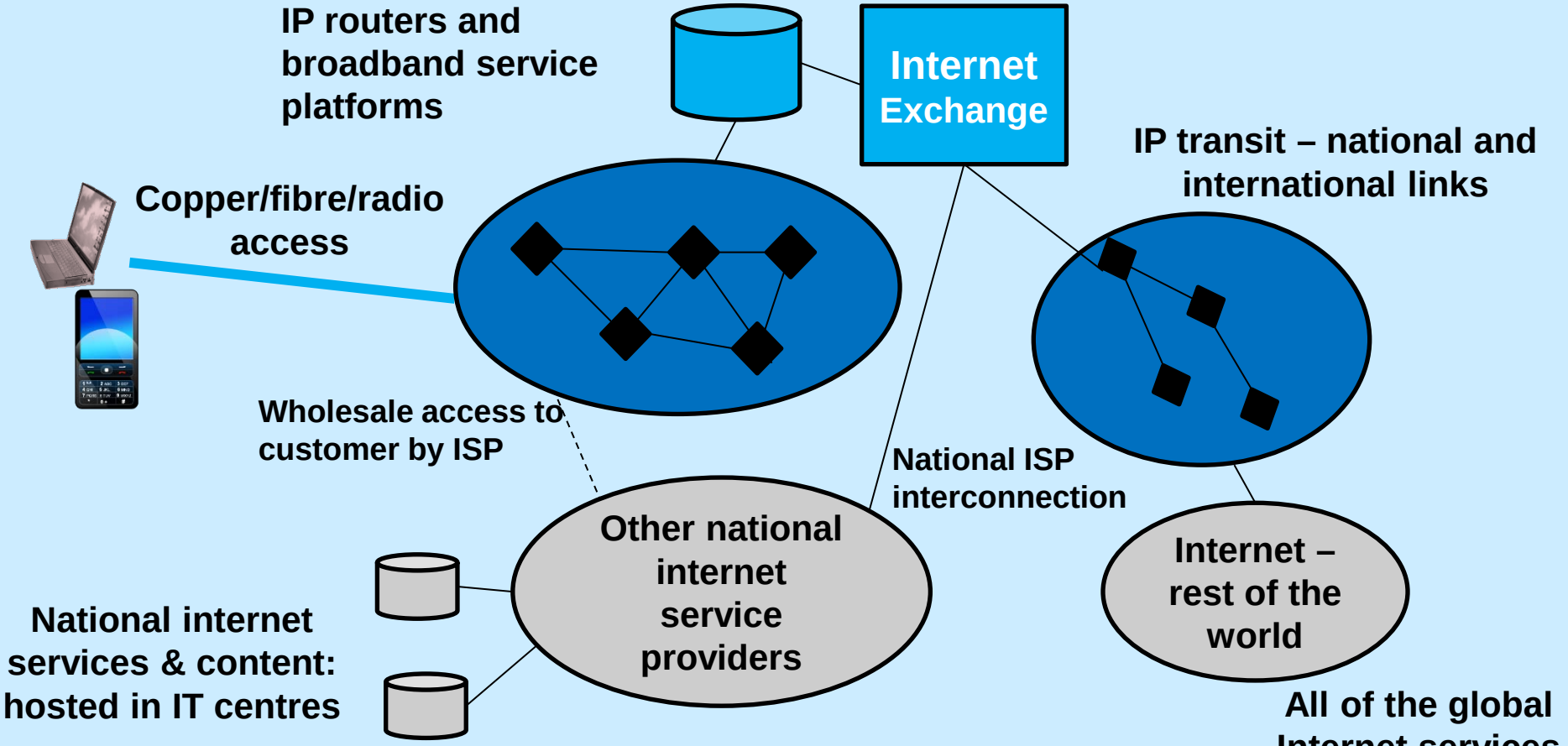
- Relevant to emerging and developed economies
- The end users benefit. The service suppliers benefit. The network providers benefit. The national economy benefits. The government then benefits (general taxes)

The economics of broadband



- No point in building new copper networks
- Wireless options have role to play in *all* countries (high & low GDP, high and low population density)
- Wireless is very important where cost matters and there is little copper infrastructure to build on

Investment, regulatory decisions and policies should centre on the key building blocks



- Internet access is the most important service
- Even in emerging economies “almost everyone” has a mobile handset

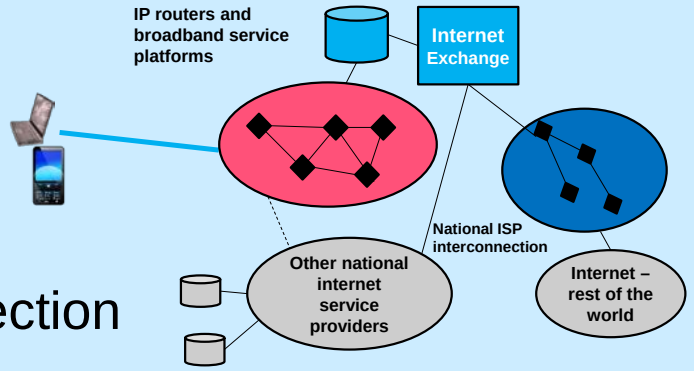
Access economics and regulation are linked

- Big investment is required
- Not sensible to have two cables and two trenches to same street
- Inherent “bottleneck” – competitive supply is not feasible
- Lack of competition – requires regulation
- Spectrum is limited – only a few wireless networks are viable
- Duct/digging, cables, masts – *infrastructure access* may be required
- Access bit stream – *network level* access may be required

- High cost, long time for a return, even with shared networks – leads to government funding (*even* in EU, USA, Australia). Access is perhaps more like road/water/power infrastructure and competing services can be developed on top of this

Core network economics and regulation

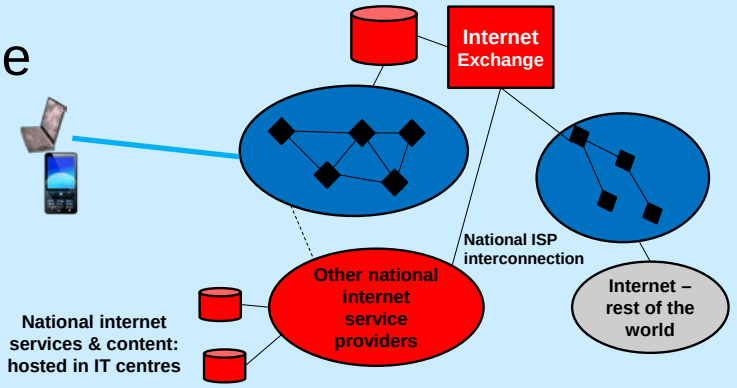
- Usually core NGNS can be telco funded
- Several operators can be viable
- Need to ensure interworking and interconnection



- Must allow competing services to be supplied over the core network
- In large countries and to remote areas, the connectivity of the core may need external funding
  - The “Road analogy.”
  - Example: backbone networks are provided in South Africa by government *and* private enterprise
- Contrast to developed economies – often many capacity providers between cities (but they often cannot connect to the customer)

Alternative broadband service providers and content

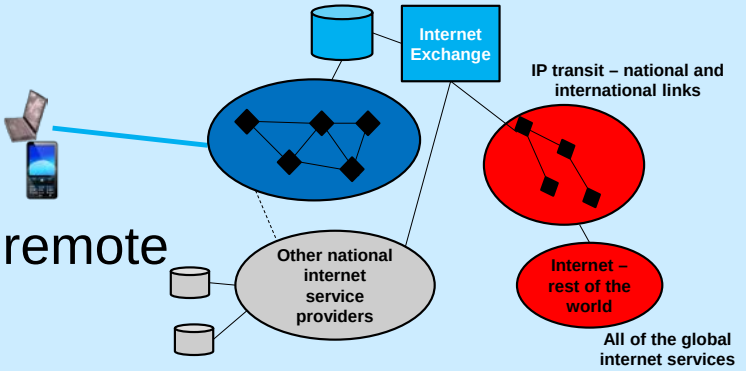
- Let alternatives providers gain access to the bottleneck services (network access)
- Service-level competition (in contrast to access-network competition) is relatively easy to foster



- Need regulatory freedom in downstream markets and rights of access/interconnection
- May need some help with platforms – secure IT centres, exchange points. Possible funding or “seeding assistance”
- Content and services – the real consumer benefits are derived from these

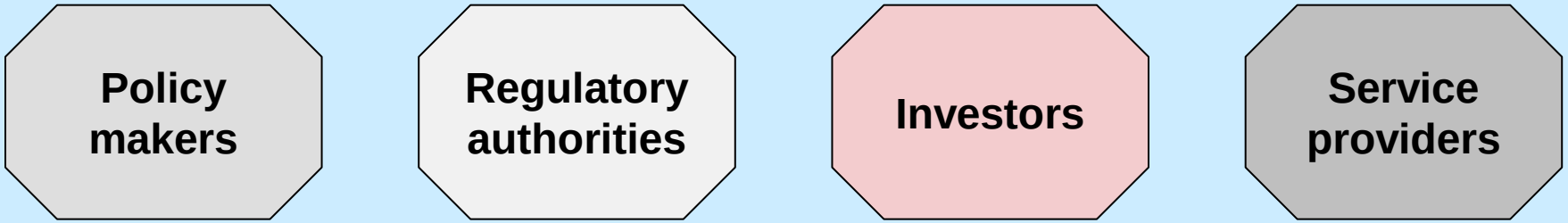
International connectivity is often a major factor

- International Internet capacity is freely traded and competitive
- But often limited capacity in emerging and remote countries
- International cables are required. May need funding and incentives to get the investment made
- IP transit is very cheap in developed economies and keyglobal centres
- Forms a significant portion of the cost of Internet services in emerging/smaller economies



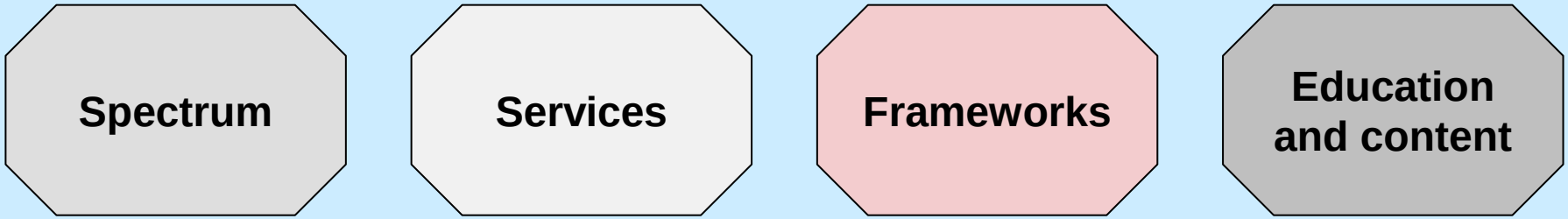
- There *are* ways to reduce the impact

The issues need a joined-up approach



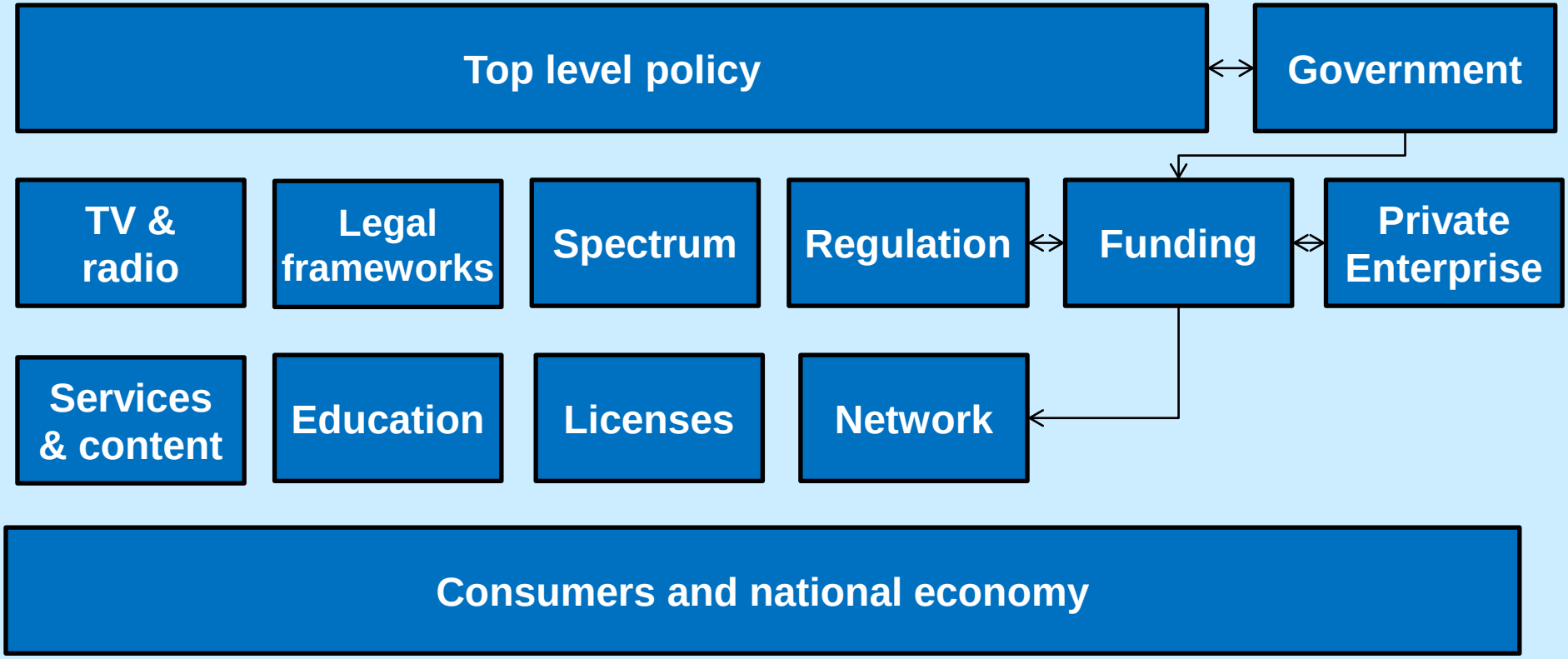
- Broadband and broadband benefits do not just happen. Most countries have linked programmes and policies. Look at Korea, EU, Australia
- Unlike most telecoms movements in last 20 years, there has been *increased* government intervention and funding, in broadband
- Need a policy and programme that links all areas.
- A vision for the country. Might link it to neighbours

Policy issues



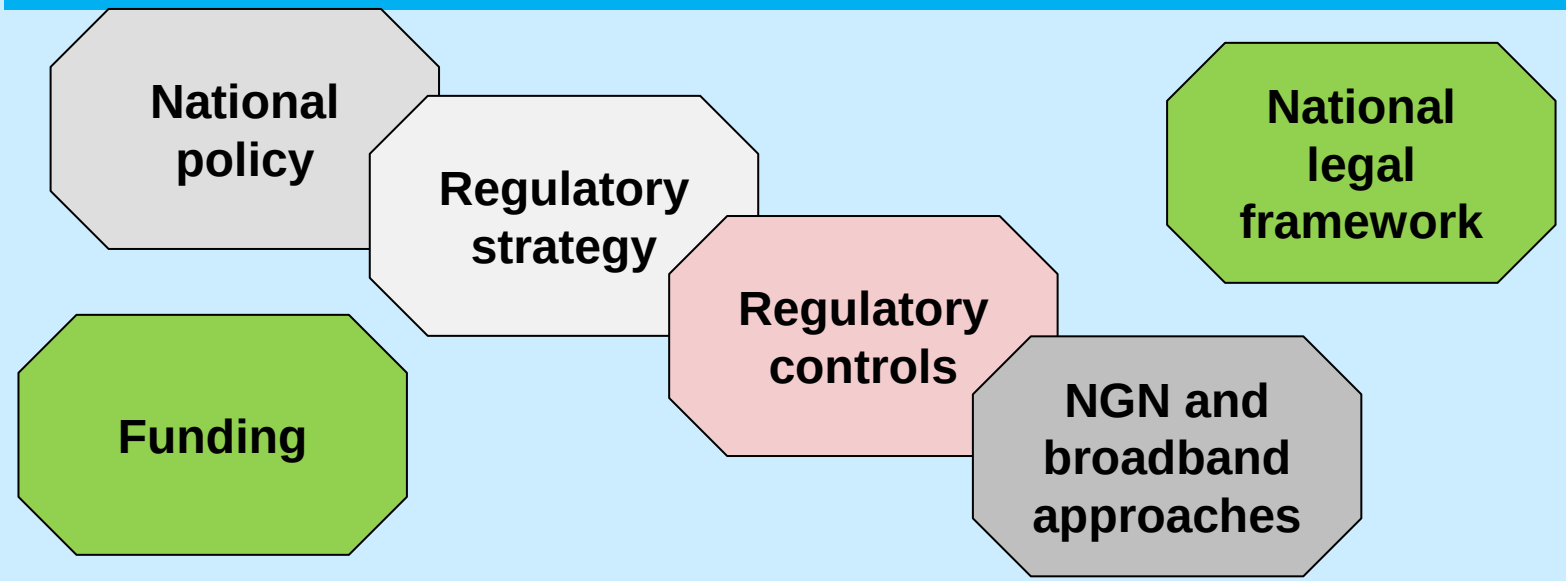
- Spectrum – especially important in emerging economies. Mobile and wireless broadband also important in developed countries. Spectrum policy *is* linked to fixed networks
- Services. From network and infrastructure to voice and internet access. Maximise freedom to act and minimise regulation. Minimise restrictions
- Frameworks. Consumer rights, confidentiality, copyright, security
- Education and content. Can supply “normal” education and information to everyone. Also need ICT education to make use of IT/broadband. Also need more on how to develop services and content

Key components when developing a policy



- All areas are inter-related
- Need a top down, fully comprehensive approach

Regulation plays a central role

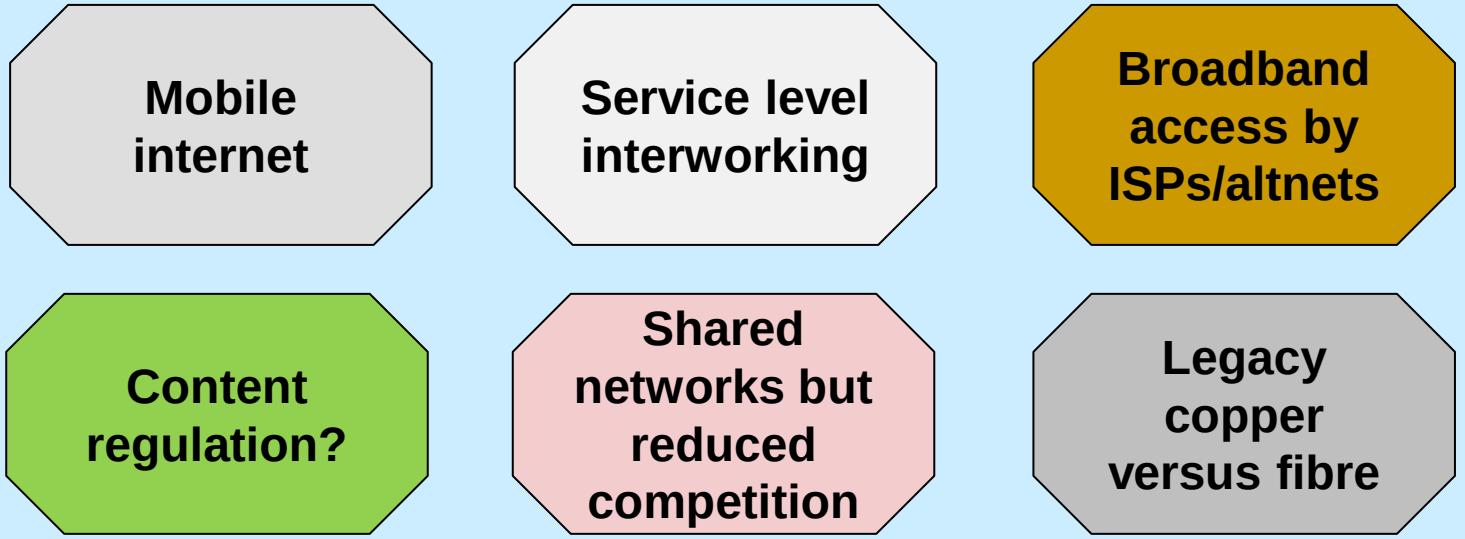


- Regulation helps to make the wider policies work. Regulation has its own plans and frameworks to achieve the national aims
- Regulation is not directly concerned with funding, but with regulating what is spent (built) and encouraging funding
- With broadband and NGN, new ways of thinking and acting are needed
- But the *fundamental principles* of regulation remain

NGN and broadband regulation

Competition, easy market entry	Do not regulate unless you have to Some areas do need regulation
Markets	Retail and wholesale markets – what are they? Define what to regulate
Price controls	Mainly in wholesale markets Cross subsidies. Dangers from, plus use of, to assist other market segments
Interconnect and access	How should services and service providers interconnect Allow access at what levels
The digital divide	Some areas/customers cannot be addressed economically Big issue in all countries and critical for NGN regulation

NGN regulation requires some new thinking



- Bigger focus on mobile in emerging economies. Some are almost mobile-only
- Some backtracking is seen on some past regulation – increased intervention in some cases
- A “Big issue” with NGN and fibre, is centred on *copper* legacy. See EU – may not be valid in less developed countries

Key messages

- NGNs and broadband services benefit everyone
- A comprehensive approach is required covering many areas. Do not think “just telecom,” but consider all parts of the economy and all industries that benefit
- Have a policy and a plan. This has the aims and targets, but **more importantly** it must define ***how*** to get there and ***what*** needs to be done
- Emerging economies may need more intervention and external funding than developed markets. Almost all countries need some intervention
- Study the issues and learn from the mistakes and successes of others
- Be far reaching – think 100Mbit/s or 1Gbit/s, *not* 1-2Mbit/s even if most have nothing today

Questions and enquiries always welcome

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