



PYGMA CONSULTING



**Unlocking Africa's potential
... one sector at a time**

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

BEST PRACTICES FOR IMPLEMENTING UNIVERSAL ACCESS POLICIES

Mandla Msimang

*Gaborone, BOTSWANA
17-18 May 2011*

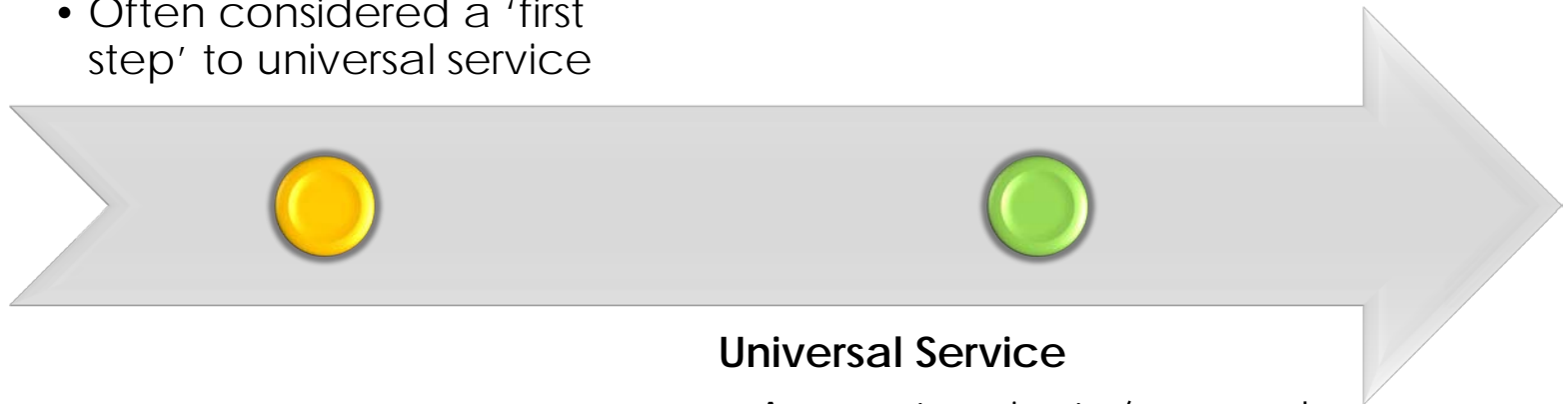
■ Key Concepts

- What has Changed
- Rationale for UAS: Why Bother?
- Ways to Achieve UAS
- Ways to Finance UAS
- Conclusion

Key Concepts: Approach (1)

Universal Access

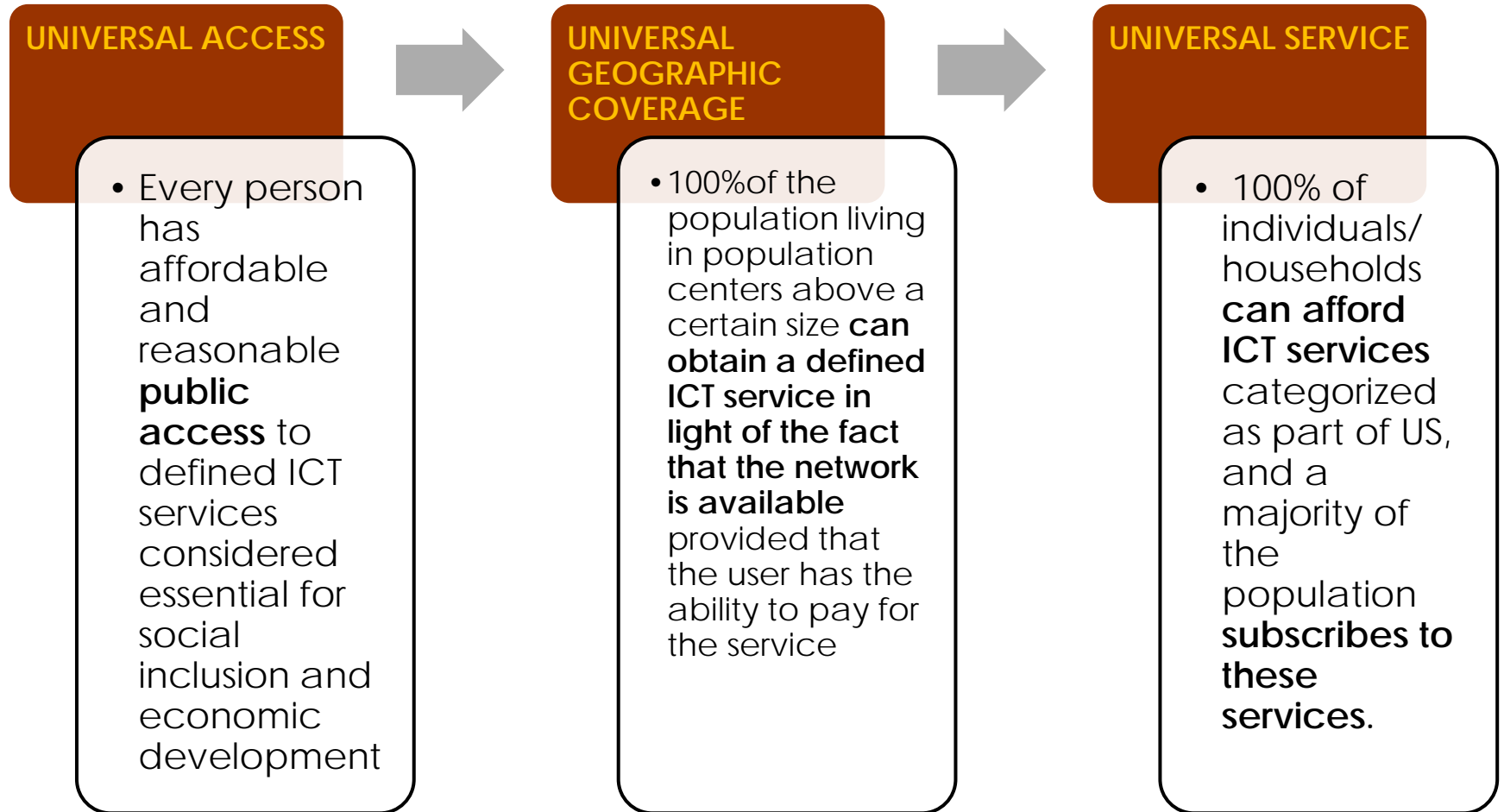
- Publically shared or community service
- E.g. payphones, community phone shops
- Often considered a 'first step' to universal service



Universal Service

- Access to private/personal service
- For example household level, individual level (e.g. mobile phone, PDA)

Key Concepts: Approach (2)



Key Concepts: Objectives

Availability

- The service is present in inhabited areas through public, community or personal devices

Accessibility

- Can be accessed regardless of Disability, Age, Location, Gender, Race, Religion, etc

Affordability

- Ability to pay for access/service/device

Awareness & Ability

- Recently added (to address 'e-inclusion' i.e. Broadband & Internet)
- Awareness of services
- Ability to use PC, internet, advanced ICT services

Key Concepts: Policy Framework

Informed by National Priorities, International Commitments and sector-specific strategies.

Universal Service & Access Definitions

Identification of "Gaps": Determination of (1) what category of people, and (2) what areas, fall short of meeting national targets as set out in definitions.

"Needy People" Definition/ Identification

Underserved Area Definition/ Identification

Identification of "Solutions": Determination of how licensees will participate in filling the "gaps," i.e. obligations and contributions

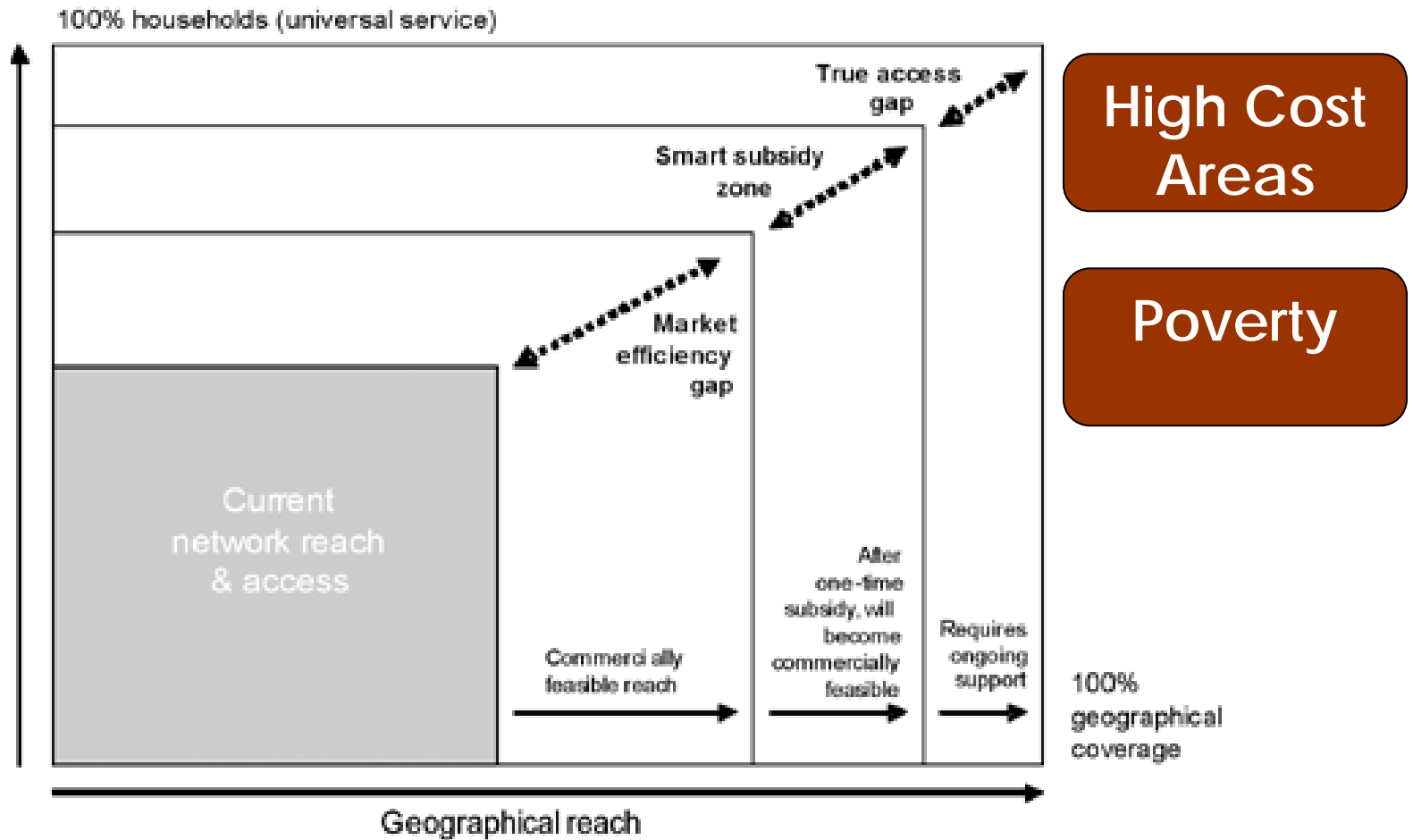
Level of USAF Contributions

Mandatory Obligations

Level of USAF Contribution

Mandatory Obligation

Key Concepts: Market Gap Analysis



Source: J Navas Sabater, A Dymond, N Juntunen, 2002

- Key Concepts

- **What has Changed**

- Rationale for UAS: Why Bother?

- Ways to Achieve UAS

- Ways to Finance UAS

- Conclusion

- IP development, Next Generation Networks (NGNs), Convergence
- From “Digital Divide” ... to “Broadband Revolution”
- Challenge has moved from POTS (Plain Old Telecoms Services) to PANS (Pretty Awesome New Stuff)
 - i.e. From ‘vanilla voice’ to include broadband (including content and applications)

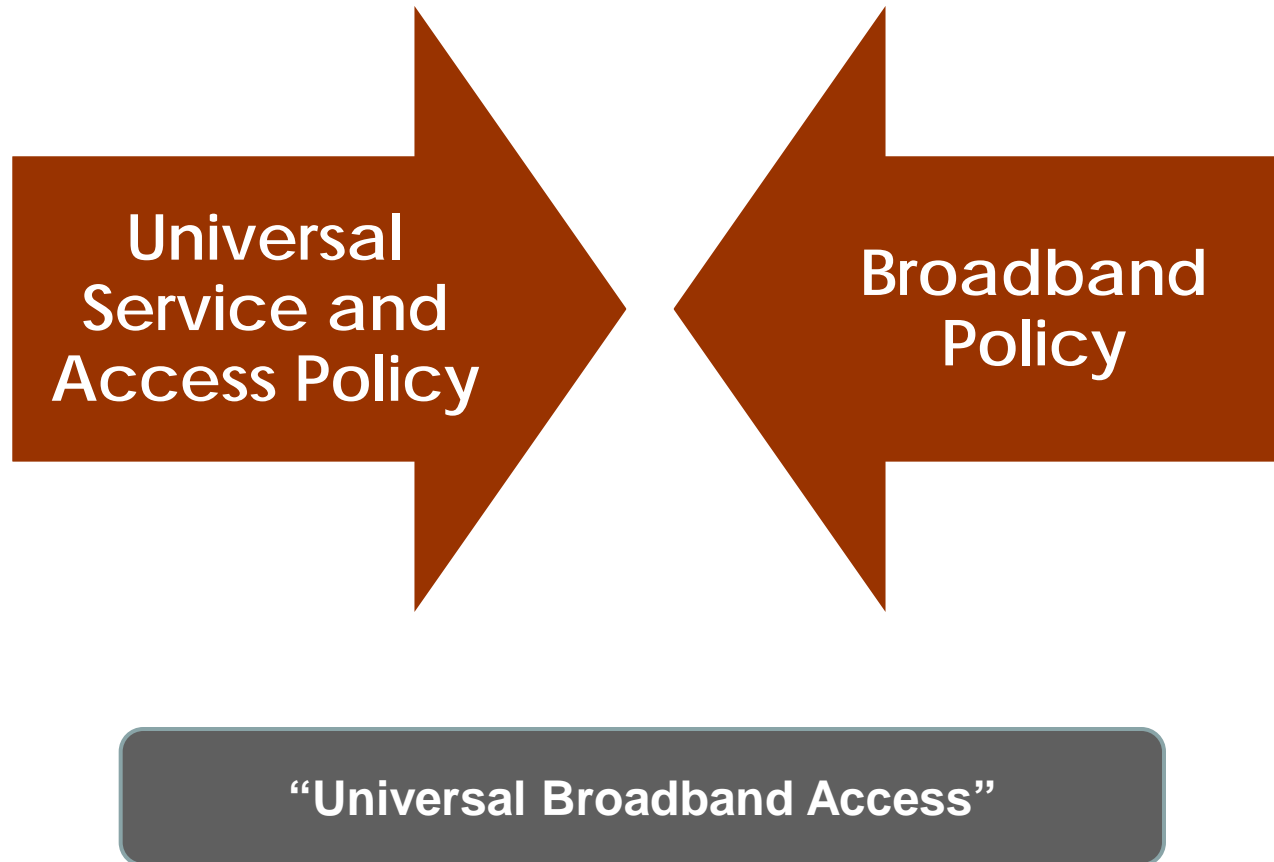
Black, White and Grey Zones (European Commission)

At least 2 broadband network operators - COMPETITIVE

1 broadband network operator – but some users still have inadequate access. Needs an analysis of the market.

Underserviced – no broadband operator

What has Changed? Policy Framework



“Universal Broadband Access” sought in:

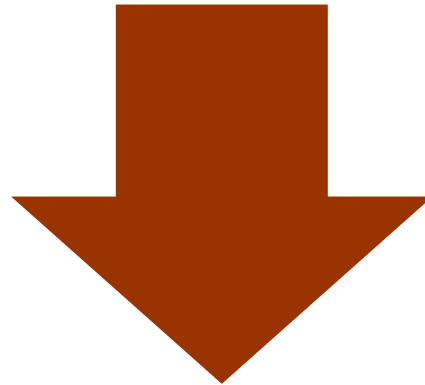
- **Chile** - Information Society Universal Access Policy encompasses the broadband policy and the Universal Access and Service Fund (UASF).
- **South Africa** – USAF can be used to meet national targets as set out in 2010 Broadband Policy
- **Brazil** - Bill 1481/07 proposes to allow resources from the Fund for Universal Telecommunications (FUST) to be used to extend broadband coverage

- Australian Bureau of Transport & Comms Economics has 5 step framework before upgrading a USO:
 - Identify and define the product
 - Is the product sufficiently “essential” to justify major policy intervention? (e.g. subsidy)
 - Determine costs relative to benefits
 - Find practical and efficient implementation mechanism
 - Work through likely effects on other policy goals

What has changed? Scope of Universal Service

- Over 40 countries include broadband in their universal service or universal access definitions (ITU, 2011)
 - **United States:** Complete re-think of universal service financing! USF has helped increase broadband penetration by providing funding for new lines in rural areas.
 - **Switzerland:** included broadband in USO as a way to expand coverage (2008). The universal service provider charged with USO must provide a broadband connection to the whole population, via DSL or satellite or other technologies (at least 600 kbit/s downloads and 100 kbit/s uploads, and monthly subscription < CHF 69)
 - **Finland:** broadband access is a legal right - recent national legislation extended USO to cover broadband with the objective of a basic 1Mbit/s broadband connection available to all by 2011.
 - **India:** USOF (since 2006) supports broadband connectivity and mobile services in rural and remote areas of the country.

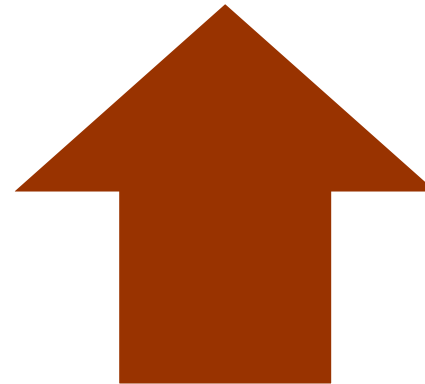
What has changed? Scope of Universal Service



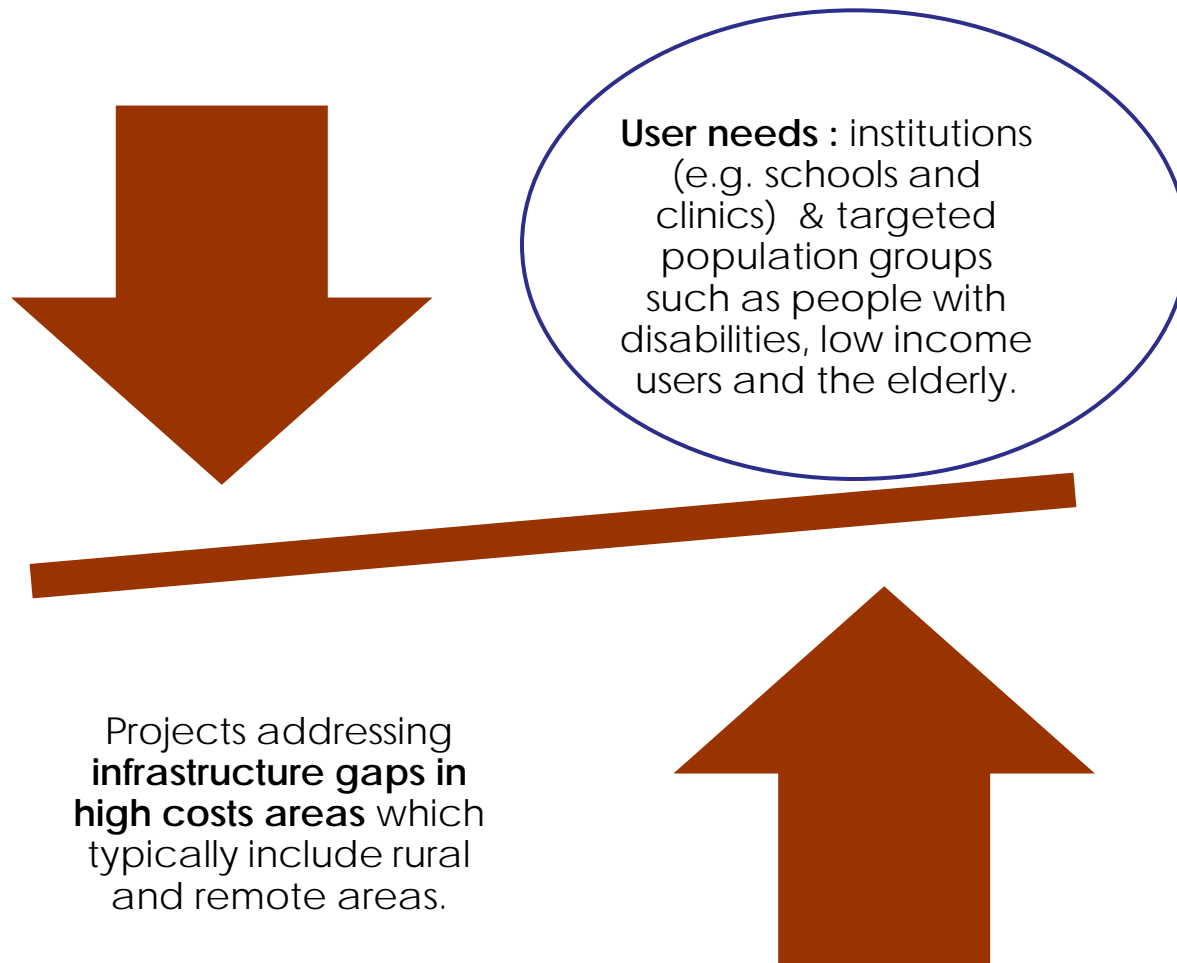
User needs : institutions (e.g. schools and clinics) & targeted population groups such as people with disabilities, low income users and the elderly.



Projects addressing **infrastructure gaps in high costs areas** which typically include rural and remote areas.



What has changed? Scope of Universal Service

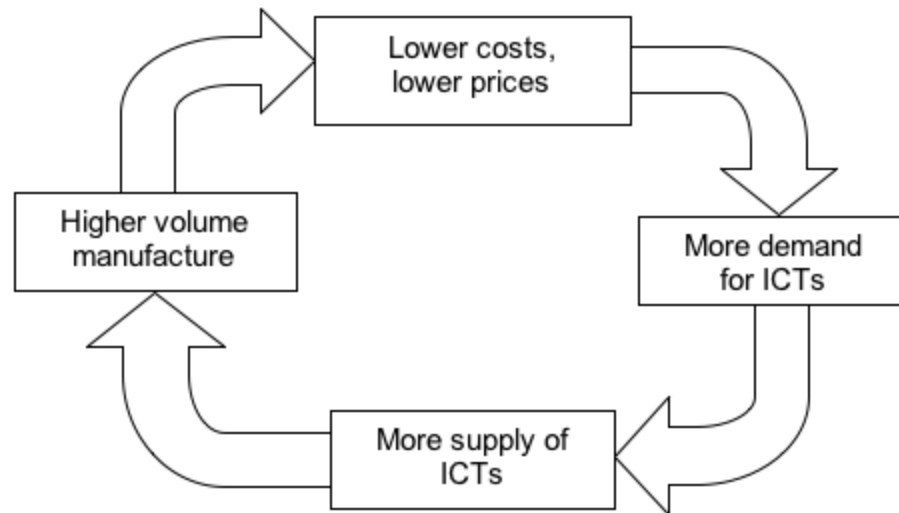


Agenda

- Key Concepts
- What has Changed
- **Rationale for UAS: Why Bother?**
- Ways to Achieve UAS
- Ways to Finance UAS
- Conclusion

What's the Same: Why Bother?

- ICTs are social and economic enablers
- Network effects – increased access results in increased demand
- Market gaps may otherwise remain in place due to poverty, geography or isolation
- Rapid changes in technology



Why Bother: Broadband Access

Broadband defined as speeds equal to or in excess of 256 Kbit/s

REGION	SUBSCRIBER NUMBERS (MILLION)	PENETRATION LEVEL (%)
East Asia & Pacific	381.4	17.8
Eastern Europe & Central Asia	49.2	12.4
European Union (EU-27)	294.1	60.5
Latin America & Caribbean	52.4	9.2
Middle East & North Africa	27.8	7.6
North America	210.9	62.5
South Asia	9.1	0.6
Sub-Saharan Africa	15.6	1.9
World	1040.6	15.6

Source: World Bank – Infodev, 2009



PYGMA CONSULTING

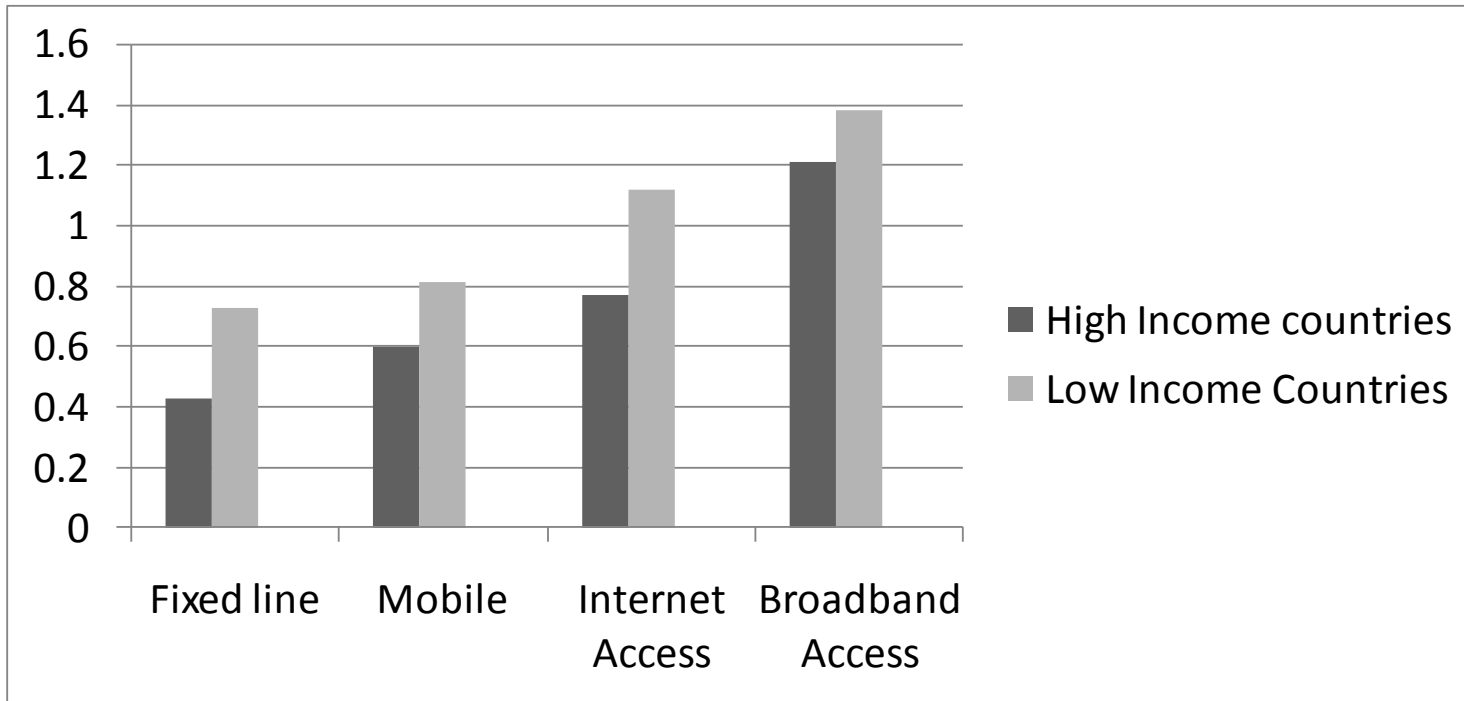
Why Bother: Benefits of Broadband - Economic

- Broadband cities attract more services firms and so create more jobs than their narrowband counterparts.
- Communities benefit from faster Internet access
 - enhanced real and virtual opportunities to communicate with each other and to access government services and public officials
 - Promotion of virtual economies
- In low- and middle-income countries every 10 percentage point increase in broadband penetration accelerates economic growth by 1.38 percentage points (World Bank)
- 10 percent higher broadband penetration in a specific year is correlated to 1.5 percent greater labor productivity growth over the following five years (Booz & Company).



Why Bother: Benefits of Broadband – Economic (2)

Growth impact of telecommunications (GDP percentage point increase due to 10 percentage-point increase in penetration)



Source: World Bank, InfoDev

Why Bother: Benefits of Broadband - Social

- Connecting consumers, businesses, and governments & facilitating social interaction.
- Delivering information to individuals and businesses supports good governance, and strengthens social capital.
- Widespread access to information sources supports economic activity
- Better access to information makes markets work more efficiently and raises producer incomes.
- Information about the performance of governments & politicians makes governments more accountable and improves public services.
- Used to deliver (previously manual) public services: e.g. financial services, health care, electronic voting, and electronic land registration



Agenda

- Key Concepts
- What has Changed
- Rationale for UAS: Why Bother?
- **Ways to Achieve UAS**
- Ways to Finance UAS
- Conclusion

Ways to Achieve UAS

- Implement regulatory reform measures, e.g.
 - Legal and regulatory framework
 - Competition
 - Licensing
 - Interconnection, Infrastructure Sharing
 - Spectrum liberalisation

- Update the scope of services in traditional universal service policies (include new services, i.e. broadband)

- Apply similar UAS policy approaches in different measures
 - “Pay or Play”
 - USAF
 - Obligations

Ways to Achieve UAS

Key Principles

- Do not distort the market
- Remain technology neutral
- Adopt a forward looking approach
- Seek cost effective solutions
- Keep subsidies to a minimum

New technology (broadband), same principles?

- **Rely first on market based approaches**

Agenda

- Key Concepts
- What has Changed
- Rationale for UAS: Why Bother?
- Ways to Achieve UAS
- **Ways to Finance UAS**
- Conclusion

Ways to Finance UAS

- Private sector participation
- State funding, *can* play an important counter-cyclical role and can augment private sector investment, through **Public funding programmes and investments**, including
 - **Ownership or Equity Participation**, as seen in Brazil, Malaysia and South Africa;
 - **Public Private Partnerships**, such as the infrastructure deployment projects in Australia and Thailand globally and Kenya and Tanzania in Africa; and
 - **Provision of financial incentives and subsidies** as seen in many Latin American countries through the use of USAFs, Japan, the USA and EU through broadband stimulus packages.



Ways to Finance UAS:

Financial Incentives and Subsidies (Stimulus packages)

	Date	Stimulus Plan Approach	ICT Contribution	Total Contribution (2008 – 2010)
European Union	Nov 2008	<ul style="list-style-type: none"> - To speed up investment, and to reduce the impact of the economic downturn - Specific mention of broadband connection of rural areas. 	EUR 1 billion, (USD 1.4 billion)	EUR 200 billion (USD 280 billion)
Portugal	Jan 2009	<ul style="list-style-type: none"> - To provide a credit line to investors to rollout NGNs to boost the competitiveness of the economy. 	800 million Euro (USD 1.12 billion)	2.18 billion Euro (USD 1.9 billion)
Malaysia	March 2009	<ul style="list-style-type: none"> - National operator is to establish a subsidiary to facilitate and improve broadband infrastructure. - MCMC to facilitate broadband community centers and provide basic telephony services in rural areas. 	3 billion ringgit (USD 813 million) +2.4 billion ringgit (USD 651 million) directly to MCMC	60 billion ringgit (USD 16.2 billion)

Source: M Msimang, adapted from OECD DSTI/STP/ICCP(2009)1/ADD/FINAL

Ways to Finance UAS: Financial Incentives and Subsidies (USAF)

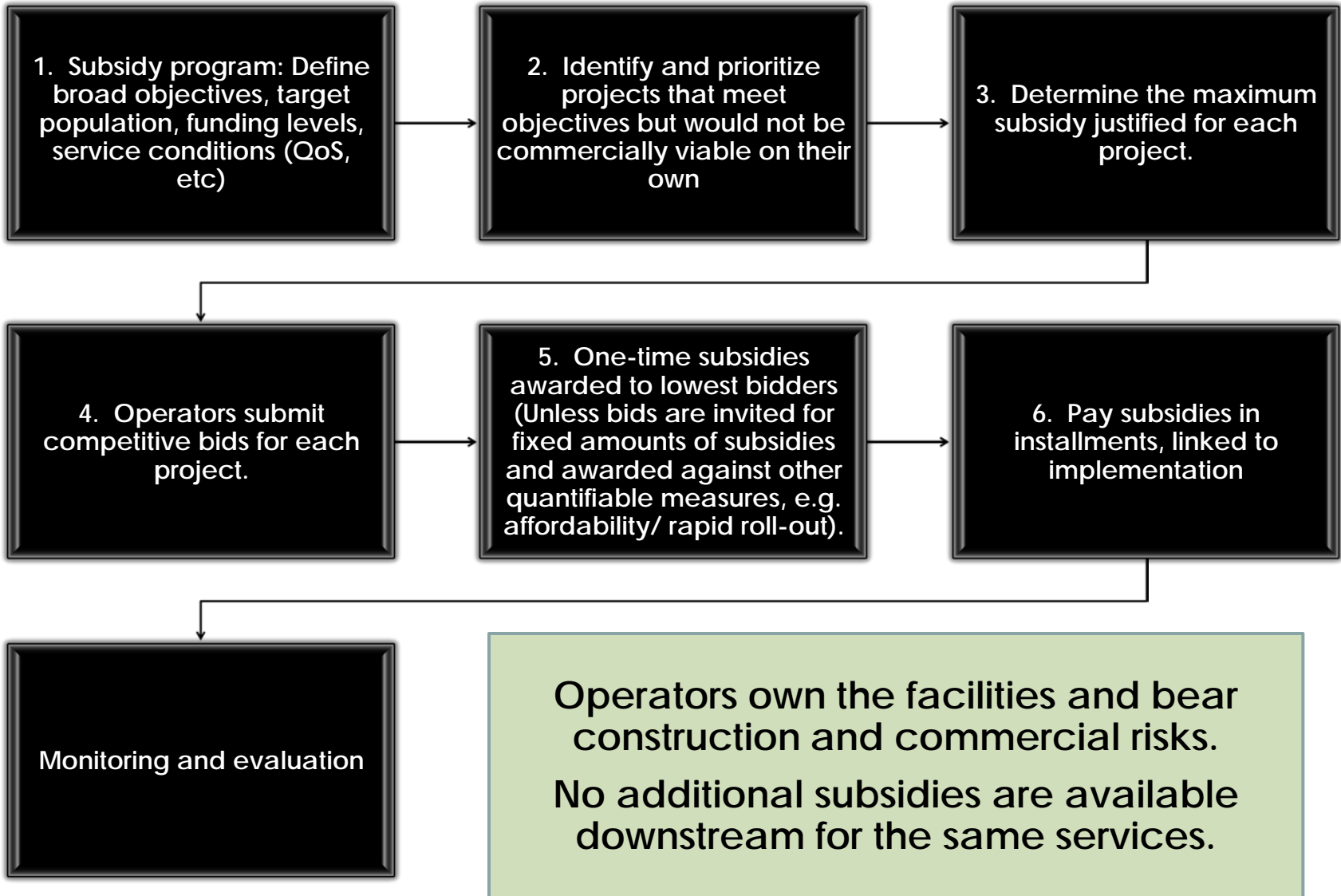
- First USAFs were established in South America in the mid 1990's;
- Funds are more prevalent in developing countries; only 9 Funds are operational in Europe and the Americas (only Australia, USA, Canada, France, Italy, Czech Republic, Bulgaria, South Korea and Oman).
- In Africa, Funds established and funded through either operator levies, gov't contributions and/or donor funds, include:
 - Uganda
 - South Africa
 - Tanzania
 - Ghana
 - Nigeria

Ways to Finance Universal Service and Access: Public Funding

The most effective Public Funding uses OBA principles

Output Based Aid Principles	Benefits of Output Based Aid
<ul style="list-style-type: none">• Link payments to delivery• Ensure that the subsidy is linked to specific measurable targets• Contract services out to a third party which receives a subsidy to meet the stated objectives• The Fund pre-finances the project (in tranches) until delivery• Subsidies must be performance based – payment is made only after services are rendered and audited	<ul style="list-style-type: none">• Transparency increases efficiency and effectiveness• Performance risk is carried by the provider (recipient of funding) and accountability is increased• The subsidy (and possibly subsidy award mechanism) incentivize the private sector• Results can be tracked through a focus on outputs/ results

Ways to Finance Universal Service and Access: Public Funding



Ways to Finance Universal Service and Access: Calculating Costs

Most common approaches to arrive at cost:

- Use of cost information to approximate the maximum subsidy; and
- Use of benchmarks derived from available local, regional and international information

Ways to Finance Universal Service and Access: Calculating Costs

Cost analysis will require:

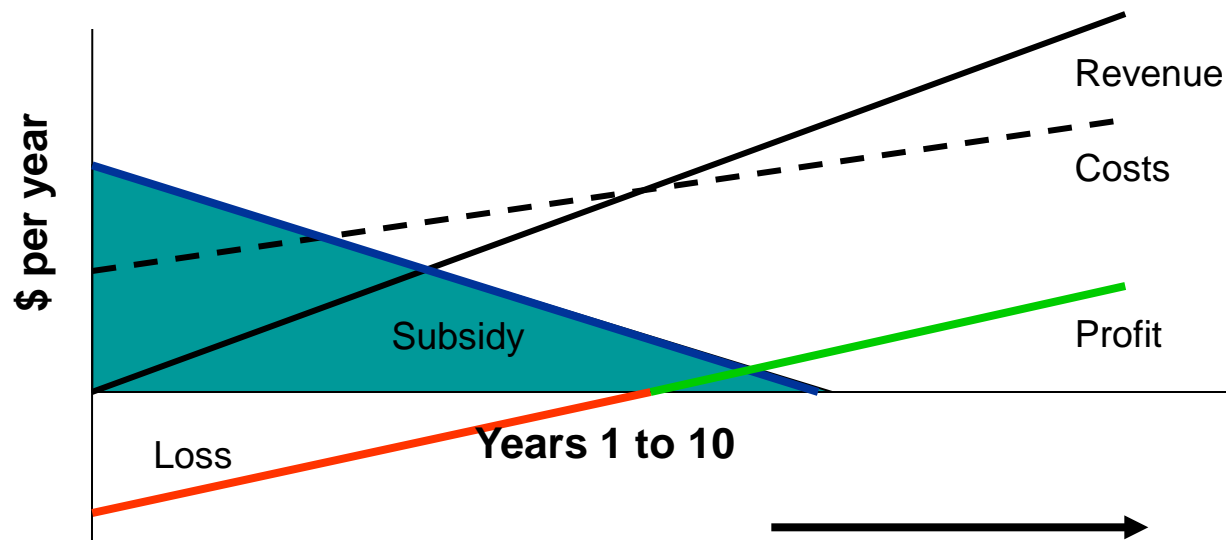
- Market data which is below national level
- ICT access levels – which is more micro than national penetration levels
- Geographical information on the project area
- Population centres and population

Two of the more user friendly cost models:

- World Bank's ICT voice Model
- Public Access Broadband Model

Ways to Finance Universal Service and Access: Calculating Costs: "Smart Subsidy" Calculation

- **Smart Subsidy = The amount of money required by an operator to bring loss-making services to an acceptable rate of return over the long term"**
 - Targeted Services
 - Once-off agreement
 - Business sustainable in the medium/ long term



Source: Intelcon, 2009

Ways to Finance Universal Service and Access: Promoting Competition

- Conditions attached to State Aid (EC)
 - Detailed mapping and coverage analysis
 - Open tender process
 - Technology neutrality
 - Use existing infrastructure to the extent possible to avoid duplication
 - Promote wholesale access (open access) by making 3rd party access to the subsidised network mandatory
 - Benchmarking pricing exercised to ensure effective wholesale access by avoiding excessive pricing, predatory pricing or price squeeze
 - Clawback mechanism to avoid over-compensation (i.e. reverse payment of market demand is higher than anticipated)

- Public interest/ public mandate considerations married with:
 - Access to private finance
 - Reduced operational risk for the public sector
 - Faster, more efficient delivery of capital projects
 - project management skills

■ Tanzania –

- National Information Communication and Technology Broadband Backbone (NICTBB) switched on in 2010 in 16 regions after the completion of the first phase of its construction; 6 regions remaining
- Partnership between China, Tanzania Government, and TTCL
- Terrestrial continuation of the fibre optic submarine cables
- Reduced prices by between 80 – 99%
- Now flat rates charged, independent of distance but no purchase option below STM-1

■ Singapore

- Wireless@SG (3 years)
- 3 providers and Government (which co-funds 30% of costs)
- 3 years of free hotspot (basic tier, 512 Kbps) access for public,
- Premium services paid for
- 6,200 hotspots

- Structural characteristics of PPPs (and any intervention involving public sector funding, incl. USF):
 - built and operated on a commercial basis by company established at arm's length from government - Limit the service contract, e.g., for three, five or ten years, after which it is open whether the chosen company will continue or a new tender is conducted..
 - Specify the conditions under which govt will reduce its interest and provide an estimated time frame.
 - should not compromise the competitive neutrality of the ICT regulatory framework
 - Where PPP requires scarce resources, particularly wireless spectrum, it should be assigned in an open and transparent manner that does not distort competition
 - At an infrastructure level, particularly with the move towards NGNs and IP-based services, the support for ubiquitous open access networks
 - Separate various parts of the PPP project where appropriate, e.g., have one company build a backbone and another manage and operate it; this might make it easier to replace a management company later;
 - Consult industry beforehand on their particular interests, and on issues of ownership, divestiture and replacement rules, and include those rules, if appropriate, into the PPP contract;

Multi-prong Approach Supporting "Availability" in Broadband Environment

India

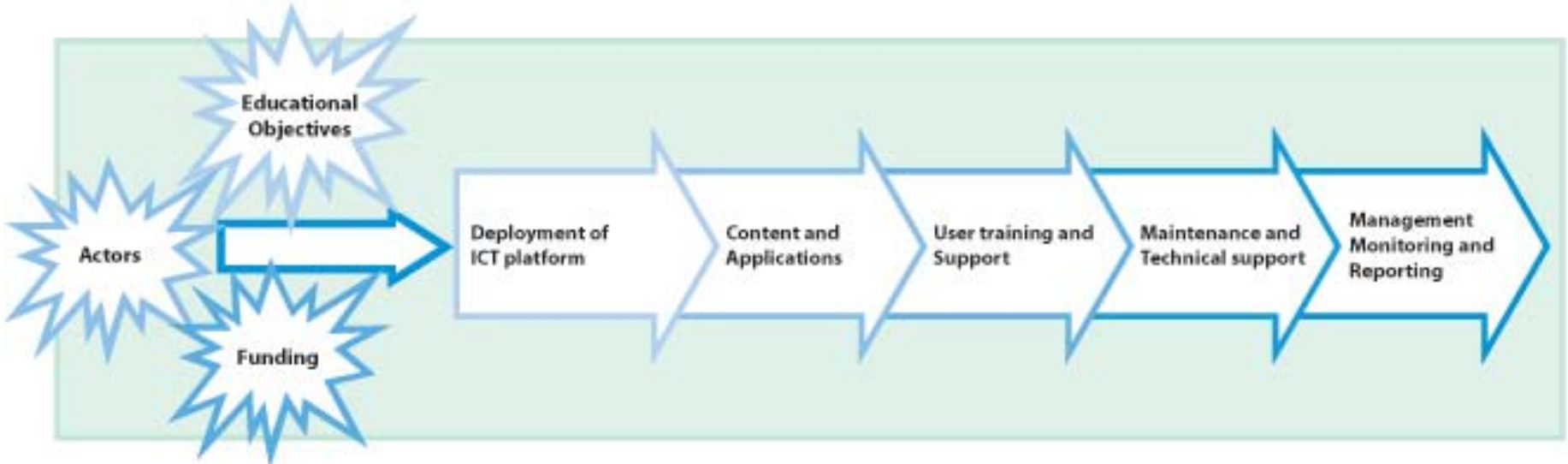
- Financial support for infrastructure sharing
- Supporting backbone infrastructure
- Niche operators exempt from spectrum charges through USO
- Discount on annual fees and spectrum fees linked to rural areas
- Abandoning rights of way charges for rural networks
- No fees for use of new technologies, incl 450 MHz
- No pre-approval for tower deployment in rural areas (under 40m towers)

USF

Regulatory

- **Same targeted mechanisms and interventions as in traditional environment**
 - Subsidies to schools, educational institutions – discounts through E-rate and other programmes
- **Schemes for elderly and disabled, e.g.:**
 - Link Up and Lifeline – USA
 - Special Social Tariff Plan - Spain
 - Low User Schemes – UK
 - Approved Users Scheme – Belgium, Hungary
- **Increased focus on content and applications**
 - Equipment and devices
 - Development of local content
 - Training
 - Digital Literacy

Financing UAS: Demand Side (2)



Financing should take into account a “Total Cost of Ownership” approach to promote sustainability

Source: Gesci

Agenda

- Key Concepts
- What has Changed
- Rationale for UAS: Why Bother?
- Ways to Achieve UAS
- Ways to Finance UAS
- **Conclusion**

Conclusion

- Same Concepts and Rationale
- Consider incorporating broadband policy objectives in universal service and access strategies
- Learnings over the last two decades have improved policy approach to providing subsidies and other public funding
- Principles of open access and infrastructure sharing for subsidised infrastructure are important
- Avoid 'over' or unnecessary subsidisation – do not distort the market

Thank you!

Mandla Msimang

mmsimang@pygmaconsulting.com

Grameen Growth Guarantee

- Tunisia, Bolivia, the Philippines, India, and Nicaragua, are anticipated to amass USD 50 million for disbursements as loan guarantees.
- Donors do not make a direct financial contribution, but rather lend their names and credit while continuing to earn returns on their individual investment portfolios.

Interim: NGN – Universal Service Impact

- Migration to NGN (replacing legacy networks)
 - Could increase average per line costs of existing network and lead to lower quality (during migration)
 - Will old network become uneconomic and only be kept alive with USO?
 - Will (interim) NGN require funding through subsidization?