



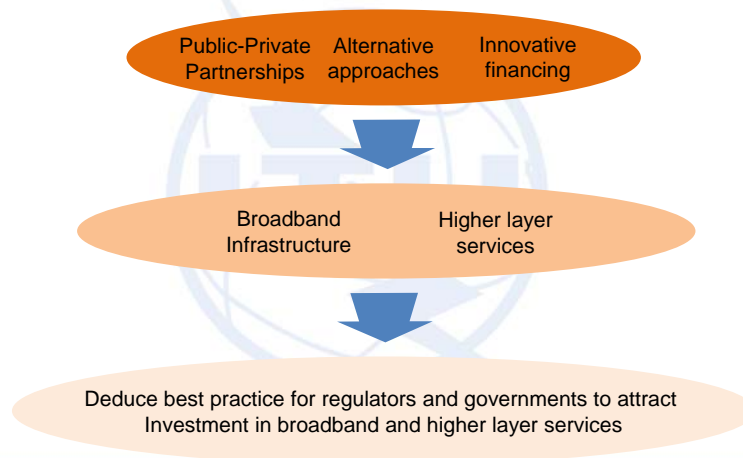
Investment strategies for the deployment of broadband and access to the digital economy

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Reviewed investment strategies in broadband infrastructure and higher layer services

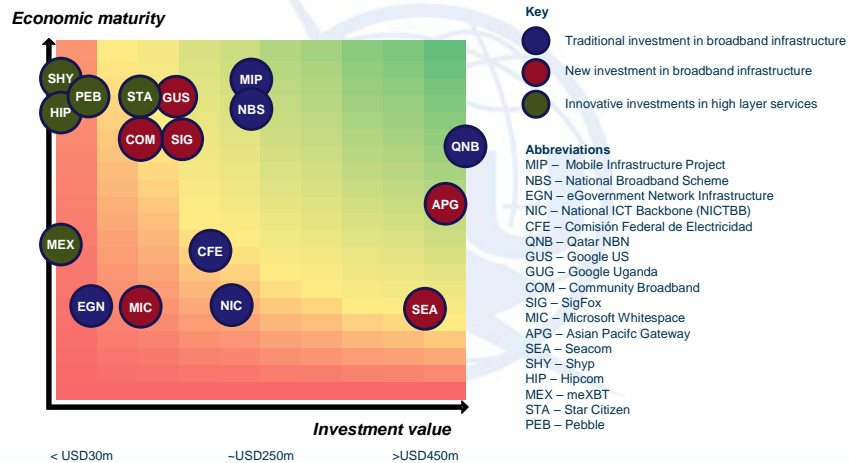


Considered 19 less well known case studies from developing and developed markets

Types of investment/activity	Developing regions	Developed regions
Public-private partnerships (PPPs)	<ul style="list-style-type: none"> National ICT Broadband Backbone (NICTBB), Tanzania Johannesburg Broadband Network Project (JBNP), South Africa 	<ul style="list-style-type: none"> Mobile Infrastructure Project (MIP), UK National Broadband Scheme (NBS), Ireland Metroweb, Italy Qatar National Broadband Network (QBN), Qatar
Alternative approaches	<ul style="list-style-type: none"> Google Fiber, Uganda Seacom, Africa Asia-Pacific Gateway, Asia 	<ul style="list-style-type: none"> MGTS, Russia Google Fiber, USA SIGFOX, France Community broadband, Germany
Financial innovations	<ul style="list-style-type: none"> mexBT, Mexico Aentropico, Colombia 	<ul style="list-style-type: none"> Star Citizen, USA Pebble, USA Shyp, USA Hipcom, UK



New and alternative investors make higher value investments in broadband than PPPs



Regulators play a key role in attracting investment in broadband networks

- Mandating wholesale open-access on state-led interventions
- Encouraging cost reduction through initiatives such as sharing passive and active radio infrastructure, spectrum pooling
- Offering licenses to encourage investment in rural areas
- Allowing operators to decommission legacy copper networks
- Providing clarity and guidance around use of existing infrastructure
- Encouraging technology pilots
- Granting permissions for community networks
- Provide telecoms maps

PPP investment strategies fall into four broad categories

Approach	Description
Private design build and operate (DBO)	Private operator retains ownership and control of the broadband network
Public outsourcing	Private operator has responsibility for running a network under a government-funded contract.
Joint venture	Where a special purpose vehicle (SPV) or separate legal entity is created by the private operator and the government
Public DBO	Government has full funding responsibility and has full ownership of the network assets

PPPs are still commonly used to fund state-led broadband networks

- Particularly in areas where it is not commercially viable for operators to invest in broadband infrastructure
- There is a distinction in how PPPs projects are implemented in developing markets compared to developed markets
- PPPs in developing markets are more likely to focus on building national core networks and metro rings
- PPP projects in developed markets tend to focus on increasing last-mile broadband coverage to the very last few unconnected premises, and on achieving very high broadband speeds

Internet giants such as Google and Facebook are investing in broadband networks

- Investment in fiber networks (wholesale and retail) to alleviate supply-side bottlenecks
- Aim is to generate revenues through the increased take-up of their services due to wider broadband coverage
- Google has invested in its own fiber networks in developing and developed markets (USA and Africa)
- Facebook has invested in an undersea fibre project to improve Internet speeds for citizens and businesses in Asia

Alternative investors also include financiers, not-for-profit firms and technology innovators

- Hedge funds and private equity firms often collaborate to make to spread risk. Invested in emerging technologies (SigFox) and in submarine cable networks (Seacom)
- Community broadband networks can be commercially feasible where returns are too low for commercial operators. Financing can be raised through crowdfunding
- Investors in innovative technologies such as TV white space can stimulate investment in rural and hard to reach areas



Emerging innovative investment approaches focus on higher layer services and applications

- Applications include gaming, wearables, apps, big data, cloud services
- Sources include bitcoin, crowd-funding, pensions, government incubators
- Largely a phenomenon confined to developed markets due to the maturity of the Internet ecosystem
- Most investments are of low value – with the exception of crowd finding – and are unsuitable for investment in broadband networks

