An increasing number of countries are recognising broadband's significant contribution to economic performance as well as social development. Over the past few years, there has been an increase in the launch of government-led plans encouraging broadband adoption across countries. However, broadband-centric policies being pursued by different countries vary in terms of objective, scope and implementation. Therefore, a critical question to consider is whether the divergence in policy will result in significant differences in the efficacy of broadband programmes.

Broadband adoption and economic impact

Broadband adoption comprises extending the reach of broadband as well as the use of devices, applications, content and services that would help users leverage high speed internet protocol (IP) communication technologies. Government policies and incentives have the potential to impact all these facets of widespread adoption of broadband. For governments, the rationale for increasing broadband adoption, through expansion of infrastructure and increasing broadband usage, is driven by short-term and long-term impacts. In the short term, the establishment of high speed networks stimulates local economies through direct employment of labour for building broadband infrastructure, and creation of indirect jobs by suppliers and services supporting the construction activity. In the long term, widespread adoption of broadband can result in significant gains in productivity.

Government's role

Public policies in broadband development vary in the extent of intervention and the degree to which policy levers focus on broadband availability (supply) or usage (demand). Public policy facilitates expansion of broadband by establishing a policy framework under which the private sector can also take the necessary measures to enhance connectivity in a country. Further, increasing broadband adoption requires demand-driving policy measures as well.

An analysis of the broadband plans of various countries, carried out in 2012, suggests that the plans vary widely in their policy recommendations. However, they converge on the overarching objective of increasing the reach of broadband to promote economic growth.

On the basis of the different broadband plans being pursued by governments globally, the key

focus areas to be achieved can be identified as coverage (subscriptions or availability), speed (primarily download), and economic impacts (including employment). Speed targets are closely associated with coverage and broadband definitions vary widely, from nascent levels below 1 Mbps to ultra-fast broadband speed targets pegged at the 100 Mbps level.

Focus on coverage and speed

Coverage and speed targets comprise the main goals in broadband plans implemented globally, thereby reflecting an international emphasis on these objectives. For example, the European Commission's Digital Agenda for Europe 2010-2020 emphasises broadband coverage for all by 2013, including fast broadband coverage of at least 30 Mbps for the entire population by 2020 and with 50 per cent of households having access to ultra-fast broadband of 100 Mbps.

A comparison of the current levels of coverage and broadband speeds in the 60 largest countries illustrates the relationship between household adoption of internet and average download speeds. Coverage and speed are highly correlated (with a correlation coefficient of 0.7), suggesting a concurrent policy approach to coverage and speed targets. Categorising economies into advanced and emerging groups further illustrates that, although the majority of households in advanced economies are connected to the internet, only a few emerging economies have the majority of households connected. And although some advanced and emerging economies have similar coverage and speed levels, a few emerging countries appear as outliers, with very high average speeds (Romania) or very high household coverage (Qatar). Coverage and download speed, although important, are not the only factors that should be taken into account by governments while pursuing broadband targets because leveraging the full benefits offered by broadband expansion requires adequate upload speed as well as latency.

Demand- and supply-side drivers

On the supply side, broadband plans being implemented by different countries can be categorised into five groups, which are as follows:

- Competition and investment policies: These policies encourage the private sector to make heavy investments in broadband networks. Technology-driven or service-neutral regulations

give operators the greatest degree of flexibility in extending connectivity. In addition, government policies have the potential to promote effective competition in international gateways and/or wholesale non-discriminatory access.

- Spectrum allocation and assignment: These policies allocate and assign spectrum to allow both existing and new companies to provide bandwidth-intensive broadband services. In a few countries, these policies also encourage and allow operators to engage in spectrum trading. For instance, the Slovak Republic's National Strategy for Broadband Access in the Slovak Republic (2009) supports a transition to the digital dividend, repurposing the excess spectrum obtained by switching analog to digital broadcasting.

- Reducing infrastructure deployment costs: These include policies that allow for access to right of way, infrastructure sharing and/or open access on critical infrastructure. For example, Germany's Federal Government Broadband Strategy (2009) includes measures to optimise the shared use of existing infrastructure and facilities. Among these measures are developing an infrastructure atlas and database on construction sites and promoting collaboration on ducts and other infrastructure.

- Core network expansion: Such policies include explicit and implicit strategies for core network infrastructure expansion that are market driven with few government directives; a government-led (or majority-owned) network company; or a combination of public and private cooperation in the core infrastructure buildout. Australia's National Broadband Network (2009) is an example of a national plan where a government-owned entity will provide national core network infrastructure.

- Inclusive broadband availability: These policies focus directly on closing broadband availability gaps for remote or uncovered populations. Options here include establishing infrastructure in underserved and/or rural areas, possibly utilising universal service obligations and/or universal service funds. Britain's Superfast Broadband Future (2010) report emphasises the Broadband Delivery UK model for delivering connectivity in rural and hard-to-reach areas to stimulate private sector investment with available funding.

On the other hand, demand-driven policies focus on greater broadband adoption through intensifying the motivators of usage. These policies can be categorised as follows:

- Affordability of devices and access: These policies include targeted subsidies for device purchases by low-income households, decreasing or removing luxury taxes on ICT devices, and low-cost leasing programmes. Morocco's Digital Morocco 2013 (2008) strategy highlights programmes to subsidise computers and internet connections for teachers and students.

- Government leadership to utilise and promote broadband: These include policies that encourage the deployment of e-government services and portals, as well as the government operating as an "anchor-tenant" for broadband services. Japan's New Strategy in Information and Communications Technology (2010) highlights recommendations for improving and increasing the availability of e-government services and for driving efficiency in government ICT systems. These services include an emphasis on cloud technology and promoting citizen participation in political activities through electronic voting.

- ICT skills development: These policies also target actions intended to increase community usage and access through "telecentres" and public access sites as well as increasing technical skills such as computer science and network engineering. Nigeria's draft National ICT Policy (2012) emphasises the introduction of ICT training at all school levels through the development of specialised training institutes.

- Facilitating online and local content, applications, new technologies and services: These policies include programmes such as targeted campaigns to increase and localise online content. Qatar's National ICT Plan: 2015 (2011) recommends policies to accelerate small- and medium-size enterprise use and participation in ICT services.

- Consumer protection and empowerment: These policies protect consumers and enhance transparency between businesses and customers. They include regulations related to personal data, privacy and transparency in the promotion of broadband offerings. The Philippine Digital Strategy: Transformation 2.0 (2011) calls for online consumer protection, consumer awareness and the creation of data security as well as data privacy regulations.

Divergent plans, common understanding

At present, countries around the world have developed national plans to accelerate broadband adoption; however, these plans vary in terms of goals and policy recommendations. The key

issues to be addressed for evaluating governments' approaches towards the promotion of broadband include determining whether there are differential impacts of supply-versus demand-side policies; if such differences do exist, whether they depend on current levels of broadband adoption (for example, are supply-side policies more relevant in countries with extensive internet adoption or vice versa), and determining which variables – such as the implementing agency and the extent of the consultative process – impact how successful a plan is in achieving the goals.

Based on an article by Cisco Systems' Robert Pepper and John Garrity in the World Economic Forum's Global Information Technology Report, 2013

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