



ASEAN ICT Dialogue

Dialogue 6:

Bridging the Digital Divide

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ASEAN ICT Masterplan

Thrust 6: Bridging the Digital Divide

- The sixth and final strategic thrust is entitled “Bridging the Digital Divide”. This thrust acknowledges that every country in ASEAN is on a different level of ICT development, and therefore focuses on closing the development gap within ASEAN through a range of initiatives.

Initiative 6.1: Review of Universal Service Obligation (USO) or similar policies

Initiative 6.2: Connect schools and advocate early ICT education

Initiative 6.3: Improve access and relevance of information

Initiative 6.4: Bridge the digital divide within ASEAN

The Digital Divide

- Within a country
 - Difference of ICT availability and deployment between urban, suburban and rural regions
- Between countries
 - Economic development, competitiveness, openness for international participation, national broadband plans
- Readiness and capability of users
 - General population
 - Skilled technicians
 - Teachers and educators
- ICT and video technologies the great equalizer
 - Use of video overcomes many inherent challenges

Benefits of Broadband

- Connect businesses and people

Businesses – access to global market, platform to offer products

People – access to range of applications (e-government, e-education, e-health), more opportunities, better quality of life

High quality video / Access to skills & expertise / Remote education & health / communications with global groups and communities

- Rural and sub-urban areas

Need availability and quality of broadband as good as urban areas

Require infrastructure with good core, middle mile, fiber-based and high capacity, international bandwidth, competitive environment

Need National Broadband Plan

Formulate and implement plan to address challenges & accelerate deployment

Act of developing and announcing plan effective means of rallying resources and support for deployment, investment, and demonstrates leadership

Consider 3 Questions

- What are the **issues** with broadband deployment?
- What are the possible **approaches** to develop a national broadband plan?
- What can governments **do**?

What are the issues with broadband deployment?



Common Underlying Challenges

- Business case for broadband for operators
 - Even for incumbents, unwilling to explore due to uncertain demand
- Challenge of large land-mass countries
 - Reach of core and middle mile networks
 - Focus on commercially lucrative high density areas
- High cost and lack of international capacity
 - Liberalize international bandwidth market
 - Internet exchanges needed
- Economic value to citizen
 - Users don't appreciate benefits, catch-22 situation

Role for government

Actions to bridge the gap and kick start cycle of innovation and investment

Competition lead to greater investment, more robust broadband infrastructure

Other Issues

- Wireline

- Quality of broadband an issue for a good user experience

- Capacity needs are ever-increasing

- Need to plan and provide for future requirements

- National plans should aim for evolving targets of 100 Mbps and above, following leading examples

- Wireless

- Spectrum limitations, quality and bandwidth level limits types of applications

- Flood of consumer devices

- Complement to wireline solutions – offload traffic

- Spectrum management is essential – keep pace with international norms for both licensed and license-exempt uses

What are possible approaches to develop a national broadband plan?



Key Focus

- Infrastructure

 - Needs to span country

 - Core, middle mile, last mile

- Affordability

 - Sharing to lower high-cost elements

 - Expand international capacity needs

 - Open through liberalization and create incentives for new investments

- Demand

 - Create content and useful applications

 - Raise ICT competency levels

Principles for Effective Broadband Plans

- Private sector-led investment most effective means of responding to market demand
 - Preferred approach and should be allowed to develop
- Such investments may not occur in a timely fashion due to local conditions and circumstances
 - Government will need to take a more active role, but not necessarily government operations
- Variety of technologies to meet local demands and circumstances
 - Government should avoid picking one technology over another
 - Technology used should be future-proofed
- Broadband plan should include demand-driving initiatives as well as supply side deployment

Examples of Approaches

Approach	Considerations	Example
Completely market driven	Pros – fast, market driven Cons – duplication, rural areas neglected	Hong Kong
Market-driven with government-directed strategy	Pros – fast Cons – business viability, rights of way, low integration of existing infrastructure	United States European Union South Korea Japan
Co-investment NetCo led by private sector	Pros – relatively fast, regulated use, efficient use of funds through bidding process Cons – rights of way, time to map existing infrastructure, potential duplication of non-integrated networks	Singapore
Government-led NetCo	Pros – planned, funded, controlled by government, built with private sector Cons – lower incentive for private sector investment, selection take time, delays with bureaucracy, low use of existing infrastructure	Australia New Zealand
Incumbent-led	Pros – high use of existing infrastructure, government funding eliminate viability issues Cons – reduce competition, may be slow	Malaysia India

Last Mile Access Technological Options

Technology	Advantages	Constraints
Fiber	Very high speed, future-proofed	High cost of deployment, largely due to civil works
Unlicensed Wireless (e.g. WiFi)	Low cost of deployment	Limited range, limited mobility
Licensed Wireless (e.g. 3G, WiMAX, 4G, LTE)	Medium cost of deployment, rapid deployment over wide geographical area, good mobility	Lower speed and spectrum constraints, potential congestion with increased usage
Powerline	Can leverage existing power line infrastructure to lower cost	Attenuation of signals after long distance, interference, speed constraints of shared medium; few successful examples
Coaxial Cable	High speed, can leverage on existing infrastructure	Asymmetric characteristics with early generation technology
Copper / xDSL	Medium speed, can leverage existing copper infrastructure	Asymmetric characteristics, limitations for high speed access
Satellite	Relative ease to reach unserved areas and difficult terrains	Low upload speed, cost of customer premise equipment

What can governments do?



As a start

- No more copper
 - Not enough capacity to support future needs
- Invest in future technology
 - Fiber (FTTx)
 - Next generation Cable (DOCSIS 3.0 and future coaxial technology)
 - Next generation wireless (4G and beyond wireless solutions)
- If replacing, use fiber
 - Bulk of cost is in civil works, incremental difference, future-proofed
- Building physical infrastructure
 - Roads, highways, railways – build trunking and ducts for future use

Healthy Sustainable Broadband Industry

- Enable **competition** to create incentives for investment and upgrade through market demand
- Facilitate **fair and open access** to infrastructure, especially high-investment passive elements, and core/middle mile elements where efficiencies can be shared without reducing competition
- Where commercially viable, **alternative technological options** encouraged for last mile for consumer choice
- Flexibility to allow private sector to develop and evolve **new business models** for innovation and growth
- **Private sector investment** drive deployment of next generation internet to meet projected demand
- Regulation **flexible, keep pace but not stifle** innovation

Developing a National Broadband Plan

- Step 1: **Recognize the need** for broadband and articulate the need within the context of a particular country
- Step 2: **Diagnose the challenges** and gaps in deploying broadband and its adoption
- Step 3: **Develop options** to address challenges and fill gaps left by private sector investment and initiative
- Step 4: **Assess and select options** to address challenges and accelerate broadband deployment
- Step 5: **Facilitate demand-driving initiatives and applications** as part of national broadband plan

Tap on industry expertise and experience

Start with organizing workshops and strategy sessions to start the process

Thank you.



Questions:
Please email shgoh@cisco.com