**Document Number: V1/C/ALC2/2**

Submission by: ARM Holdings plc, Private Sector

Draft WSIS+10 Vision for WSIS Beyond 2015

С2. Information and communication infrastructure

**1. Vision**

Infrastructure is central in achieving goals such as digital inclusion, enabling universal, sustainable, ubiquitous and affordable access to ICTs by all, taking into account relevant experience from developing countries and countries with economies in transition, to provide sustainable connectivity and access to rural, remote and marginalized areas at national and regional levels, Broadband connection based on converged services and enhanced spectrum management supported by efficient backbone, new technologies, innovative policies, plans based on reliable data, and international standardization are the keys for such achievement.

**2. Pillars**

1. To enhance the coverage, quality, and affordability of ICT/broadband network, infrastructure development utilizing converged services, enhanced spectrum management, and both wired and wireless technologies are essential.
2. Develop a well-planned, well-maintained, economic and efficient Broadband backbone to ensure the delivery of Internet services.
3. Increase research and development, and deployment of new technologies, to provide reliable and affordable ICT infrastructure.

This could be elaborated with some specific references as follows:

* ‘Support the deployment of M2M applications which can deliver benefits in diverse sectors such as healthcare, education, and transport.’
* ‘Recognise that small cells are part of the solution to solve connectivity issues in remote and rural areas.’
1. Utilize policy and financing mechanisms such as Universal Service Funds, to connect and cover rural and remote areas with affordable ICT infrastructure.
2. To attract private investment, competition policies, financing, and new business models need to be studied and deployed.
3. Policies and technologies need to be considered to ensure minorities, disadvantaged and disabled people to be connected to ICT networks.
4. Proper data collection, and planning and actions based on such reliable data are essential to avoid duplication of efforts.
5. To develop affordable equipment and services by economy of scale, development, conformity and interoperability by international standards are the key.
6. Emergency telecommunication services should be secured by promoting ICT for disaster relief.
7. Promote smart development approaches, based on partnerships which focus on human, technical, and governance.

**3. Targets**

1. Access to ICT, and gaps
2. Fixed-telephone subscriptions (World, developing countries)
3. Mobile-cellular subscriptions (World, developing countries)
4. Access to Internet/Broadband, and gaps
5. Active mobile-broadband subscriptions (World, developing countries)
6. Fixed (wired)-broadband subscriptions (World, developing countries)
7. Households with Internet access at home (World, developing countries)
8. Individuals using the Internet (World, developing countries)
9. Affordable ICT services
10. ICT Price Basket

**Annex: Zero Draft Stakeholder Contributions**

1. **To enhance the coverage, quality, and affordability of ICT/broadband network, infrastructure development utilizing converged services, enhanced spectrum management, and both wired and wireless technologies are essential.**
2. Enhance **availability of access anytime/anywhere** which requires improved ICT infrastructure with emphasis on fast and affordable broadband access.
3. Focus on ICT infrastructure **coverage, quality and affordability as issues that** still need to be addressed.
4. Foster development of **broadband infrastructure, including the creation of national fiber optic infrastructure,** through appropriate legislation, national plans, programs and provide access to information on the infrastructure through dedicated web portals.
5. **Explore wireless broadband technology** opportunity as last mile solution.
6. Foster the digital switchover from **analogue to digital terrestrial broadcasting** that is essential to benefit consumers by having more choices and quality in television services, and also to free up radio spectrum, while considering the special needs of the developing countries..
7. Develop a **convergence strategy between broadcasting, mobile and fixed services** by fostering new technological approaches.
8. Promote **spectrum** management mechanisms that would foster technological innovation including systems such as those used for providing mobile broadband services.
9. Promote the rational, equitable, efficient and economical utilization of **radio spectrum and satellite orbit resources**.
10. **Develop a well-planned, well-maintained, economic and efficient Broadband backbone to ensure the delivery of Internet services.**
11. **Develop secure, inexpensive and broad backbone** to meet the uprising demand of broadband services, especially for developing countries.
12. Considering data traffic explosion, development of **new technologies and standards** to lower the cost of broadband backbone infrastructure is necessary.
13. Develop **new business models and financing arrangements for funding broadband backbone development**, which is vital for enhancing the investment opportunities in this field, especially in the developing countries and rural areas.
14. Direct efforts towards the regional dimension to profit from economies of scale in terms of interconnectivity, bandwidth sharing, regional backbone, and regional manufacturing capabilities.
15. Recognizing that the deployment of Internet Exchange Points (IXPs) has improved the overall Internet experience in many countries and role of IXPs in contributing towards **faster and cheaper Internet** access in developing countries, continue fostering the creation of **regional and national Internet Exchange** points to enhance the Internet traffic management and help to bring down International interconnection costs – also providing a platform for more local content to be made available..
16. **Increase research and development, and deployment of new technologies, to provide reliable and affordable ICT infrastructure.**
17. Construct reliable information and communication infrastructure based on **next generation networks.**
18. Promote the enhancement **of multiservice access platform**
19. Accelerate deployment **of IPv6, to reinforce** an impact on the technical development of the Internet as well as on the pace of innovation and economic growth associated to this technology.
20. Recognize the **importance of cloud computing** in the international ICT arena by exerting the needed efforts in this field and the related areas of data centers, integrated solutions and new Internet technologies.
21. As data centres change from **hardware-defined to software-defined**, software-based solutions running on standardized hardware could be implemented to telecommunication networks to reduce expenses and increase scalability.
22. **Utilize policy and financing mechanisms such as Universal Service Funds, to connect and cover rural and remote areas with affordable ICT infrastructure.**
23. Enhance and secure **high-speed broadband environment** based on characteristics of communities even in unprofitable areas like isolated islands..
24. Emphasize on **robust and secure broadband roll-out** which enables both economic and social wellbeing, especially developing and landlocked countries
25. To maintain the economic viability of broadband networks and to extend their reach into unserved and underserved areas**, lower the cost of network infrastructure** through technology, standards, networks/infrastructure sharing as well as partnerships, and new business models.
26. Provide **regulatory incentives** to develop telecommunications in marginalized areas, including packaging urban projects with rural/remote area projects, in an effort to achieve universal service.
27. To provide new opportunities for business entities to enter the rural/remote areas market, **foster development of new services, business models and regulations**, which needs close participation of policy-makers and regulators.
28. Promote **innovative approaches towards Universal Access** **and Service**.
29. Continue increasing and improving **access to broadband Internet services through advanced mobile technologies** and other wireless access technologies by making these services widely available in urban and rural areas at reasonable costs to cater for all demographic levels and communities.
30. Recognizing that **Broadband services have both social and economic benefits** for the global community, which are vital for realizing economic and social sustainable development goals post 2015, **decrease access gap** by developing broadband and mobile technologies as the backbone of Information Society.
31. Facilitate the **affordable wireless Internet access to the citizens**.
32. Ensure a **geographically consistent development of broadband** electronic communication networks throughout the national territory and to promote the use of electronic communication services.
33. Increase studies and research on **economic, energy efficient and clean equipment suitable for rural and remote areas** ICT infrastructure development.
34. **To attract private investment, competition policies, financing, and new business models need to be studied and deployed.**
35. Explore **new models of financing the development and deployment** of ICT Infrastructure. To **attract private investment**, promote policies to ensure network openness and ubiquitous connectivity through network sharing and competition.
36. To introduce new licensing schemes and regulatory frameworks to cater for new technologies, **continue setting up independent, proficient, transparent and effective telecom regulatory commissions/authorities** in developing countries.
37. Create the conditions for the **development of fair and effective competition** by encouraging agreements between regulators and operators.
38. **Instigate additional competition** in the telecom sub-sectors, taking into account its significant impact on increasing availability and affordability of various services in both rural and urban areas.
39. Promote **competition policies**, such as securing fair competition condition among entities, that enable for all users to use inexpensive and high-speed broadband environment
40. Create an **enabling environment that attracts investment, promotes innovation and fosters entrepreneurship** to advance and continue the affordability of the Internet, taking into account that an essential factor in this enabling environment is the deployment of broadband infrastructure.
41. Accept that market solutions not always result in the rollout of sufficient infrastructure, and in some economies, **government intervention of some form may be required** for some portions of the infrastructure.
42. **Policies and technologies need to be considered to ensure minorities, disadvantaged and disabled people to be connected to ICT networks.**
43. Promote the development of and access to the ICT services that considers the **inclusion of people with disabilities, gender minorities, and specific groups with higher level of vulnerability**, while fostering the provision of specialized training as an important component in this regard.
44. Enable appropriate ICT infrastructure access for **analphabets**
45. Expand ICT usage in rural areas develop **affordable and easy-to-use devices and build capacities for e- literacy.**
46. Promote the development of **safe community spaces**, such as public schools and libraries, where those unable to afford personal Internet-connected devices can still experience the benefits of the information society.
47. Reassess infrastructure investment and policies that takes the needs of poor and marginalized as a starting point.
48. Promote **affordable and inexpensive ICT equipment** and their terminals and handsets.
49. **Proper data collection, and planning based on such reliable data are essential to avoid duplication of efforts.**
50. Promote development and implementation of **broadband plans and actions** for **digital inclusion**.
51. Ensure the planning of ICT networks by using a database referring to a common Geographic Information Systems (GIS).
52. The **importance of background data** for planning a reliable and efficient broadband backbone network without duplication is increasing. The **knowledge of the current situation of regional and cross-border broadband network** is an essential data for identifying the missing linkage for connecting the unconnected.
53. **To develop affordable equipment and services by economy of scale, development, conformity and interoperability by international standards are the key.**
54. **Interoperability of ICT devices**, systems and services should be facilitated through implementation of international standards.
55. Harmonized **Conformance and Interoperability** programs will facilitate free circulation of equipment, enabling cost benefits.
56. **Global implementation of international standards** should be facilitated to reduce trade barrier and promote competition in ICT industry.
57. Encourage developing countries to develop their national standards development and enforcement capability, and facilitate developing countries **participate in** **international standardization process**, to ensure that they experience the economic benefits of associated technological development and to better reflect their requirements and interests.
58. Interconnection of telecommunication services should be improved at national and international level.
59. Provide high-speed satisfactory **quality of services**.
60. **Emergency telecommunication services should be secured by promoting ICT for disaster relief.**
61. By promoting ICT for disaster relief, **emergency telecommunication services** should be secured.
62. **Promote smart development approaches, based on partnerships which focus on human, technical, and governance.**
63. **Promote smart development approaches**, based on partnerships which focus on human, technical, and governance infrastructure development to deploy Internet around the world.