Information and Communication Technology for Development

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The ICT industry's role in the WSIS process can be characterized by:

- Stimulating the exchange of views between political and industrial leaders and ICT users to create awareness of the needs of the future Information Society;

- Contributing to ensure a commitment to create a legal and commercial framework to stimulate investment in information society infrastructure and contents; and

- Aiming at the adoption of a worldwide, agreed, concise and realistic Action Plan based on the Principles of the Information Society and supporting its implementation.

The envisaged Action Plan was successfully finished at WSIS I in Geneva; now its realization is the big issue, where industry can give support in many ways.

Industry not only offers technical solutions for ICT infrastructure and services to overcome the digital divide, but also has profound knowledge on how one can effectively and quickly cooperate globally in daily work by means of modern ICT. Industry has been doing a lot in disseminating such knowledge to their partners all over the world. This comprises exchange of information with customers, between colleagues in joint ventures, or in international organizations such as the ITU and its regional agencies.

The greatest challenge, however, still seems to be the rapid build-up of the required network infrastructures. Here industry offers products, complete network solutions, assistance in drafting business cases, build-operate-transfer models, etc.

In technological terms, there are basically two ICT infrastructure approaches:

- The "classical" network solutions, successfully implemented in many places around the world, based on several dedicated networks for (fixed and mobile) telephony, data transfer, Internet traffic, TV distribution, etc.;

- The "modern art of networking", i.e. convergence of networks to a single, high-performance multi-service network, based on the Internet protocol (IP) and offering end-to-end broadband capability and guaranteed quality of service. Such a network is often called Next Generation Network (NGN).

Next Generation Networks can be seen as an evolution from both PSTN/ISDN[1] and IP networks to a **unified public network for electronic communications based on IP**. Such multi-service networks need harmonized interfaces and defined protocols in order to allow interoperability and "seamless" end-to-end applications.

Where current network infrastructure is insufficient, the NGN concept allows to skip a step in technical evolution, which may be of special interest to developing countries. They should consider this promising technological alternative at an early stage in their infrastructure planning.

Convergence on an IP-based network means that all classes of services can share one single network, thus considerably reducing operational and maintenance costs. A voice-only network will be unused for a significant portion of every day (rather: night). During the night the cost-effectiveness of the network is dismal. Once data traffic, e.g. generated by the Internet, is added to the network with its different peak time, average utilization goes up considerably.

Note that unlike the present Internet, NGNs will have quite new features and capabilities in order to facilitate enhanced network/service performance and support legal requirements such as lawful interception and emergency communications:

- High reliability, network integrity and availability

- Guaranteed Quality of Service (more than best effort)

- Safety and security (comprises access to data and services, user authentication, data integrity, confidentiality)

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[1] PSTN: Public switched telephony network; ISDN: Integrated Services Digital Network

- Data protection and privacy (e.g. in billing)

- Lawful interception

- Access to caller location information for calls to emergency services (e.g. in Europe calls to the emergency number 112)

- Carrier selection, carrier pre-selection and interconnection, with interfaces towards both traditional networks and NGNs

- Unique numbers, a comprehensive scheme for number allocation (enough numbers for all NGN services) and number portability

- Directories as an essential access tool for publicly available services

- Access to, and affordability of, publicly available services for disabled users

Industry can assist network operators and service providers through information, education, case studies, network planning, etc., and thus help creating a vast knowledge base. Taking up local needs and considering them for international ICT standardization is a further means of support. (Preferably this should, however, not lead to diverging standards for essential infrastructure technologies; a global standard better supports economy of scale and helps cut production costs. In the case of ICT terminals, simple low-cost versions may often be a good option, as long as they comply with basic network interfaces and protocols.)

Siemens has made contributions to bridging the digital divide in many cases. In the following, a few examples of recent or ongoing activities to foster the Information Society are given:

- Our office in Kabul, Afghanistan, functions to coordinate all local activities enabling us to offer local ICT solutions to meet the war-torn nation's many distinctive challenges with locally grown knowledge. Similarly, our support of the UNICEF initiative *Back to School* in Afghanistan is an investment in the future of the global information society – another bridge across the digital divide. The campaign enables more than three million children to attend school.

- Enhancing the standard of school education in South Africa: The focus lies on providing much needed resources for disadvantaged learning institutions, especially rural and township schools which have high pupil/classroom ratios. Siemens

contracts local suppliers to manufacture tables, desks, cupboards and other furniture, and projects are funded appropriately.

- Tele-education project for GSM operators in Africa (together with ITU-D)

- Siemens is a founding member of Econsense – A Forum for Sustainable Development, which was created by representatives of the German economy. This organization is made up of leading German and global companies and organizations that have integrated sustainable development into their corporate strategies.

- Active participation in the Global eSchools and Communities Initiative, a United Nations ICT Task Force initiative, which comprises deployment of ICT solutions (hardware, software, connectivity), content, user training and support, technical support and maintenance, monitoring and reporting.

- In Cabo Verde, previously an isolated island chain off Africa's Atlantic coast, Siemens joined forces with Cabo Verde Telecom, the local carrier. Together we completed a fiber optic network linking all the tiny islands in the archipelago, thus improving their connection to the global network.

- In Vietnam, over 60% of the country's communities are linked by *communal cultural points*. These provide information and communications free of charge to even the most rural areas of the country, allowing people to use postal and telecommunications services or simply read books and newspapers online from around the world. Siemens donated 100 PCs to Vietnam.