LIST OF STANDARDS DEVELOPMENT ORGANIZATIONS

Telecommunications networks employ technical standards to ensure that:

- The network equipment from different manufacturers can inter-operate;
- Different networks can inter-operate;
- User services operate in a consistent and reliable manner.

There are a number of Standards Development Organizations (SDOs) which are developing technical standards for 3G networks. Their role is critical to the commercial success of 3G. The technical standards will define many of the capabilities of the network. Network operators and equipment manufacturers participate within the SDOs. Network operators seek to enrich the technical standards with capabilities that enhance the values of their networks, such as new services, quality improvements, cost reductions, improved roaming, etc. Equipment manufacturers, on the other hand, seek to influence the technical standards so as to enhance the value of their products, by protecting and leveraging their Intellectual Property, reducing the cost of product development, and being first-to-market and delaying entrance of their competitors products, etc.

The SDOs exist in a hierarchy of:

- Global SDOs
- Regional SDOs
- National SDOs
- Technology- Specific Groups

1.0 Global SDO

The International Telecommunications Union (ITU) is a United Nations organization created to foster the development of technical standards for telecommunications networks around the world. They have been leading the development of 3G for more than 10 years. Their goal was to create a single global standard that would satisfy all users, from Third World customers in a rural village to high-tech “mobile professionals”.

ITU members are generally designated by government (for example, Industry Canada is the Canadian member of ITU). Major companies may also participate by providing personnel and generating the technical contributions that evolve to become ITU standards.

Practically speaking, ITU “standards” are actually recommendations, which are used by the Regional SDOs when they deliberate the “actual” standards. Nonetheless, ITU recommendations are extremely influential in the standards development process. ITU is currently in the process of deliberating the standards for 3G.

2.0 Regional SDOs

2.1 North America

The dominant SDOs are:

- Telecommunications Industry Association [TIA] - responsible for the ANSI-41 (2G Core Network) and ANSI-136 (TDMA) standards which are the foundations for Cantel's digital cellular and PCS networks, as well as the IS-95/CDMAOne (CDMA) standards employed by many North American network operators. TIA also published the original Analog Mobile Phone System (AMPS) series of standards upon which Cantel's analog network was built. Currently, TIA is actively developing enhancements for both TDMA- and CDMA-based networks.

- Committee T1 - responsible for the “North American” version of the GSM standards.

2.2 Europe

The dominant SDO is the European Telecommunications Standards Institute (ETSI) - having created the GSM/GPRS family of standards, and currently championing the EDGE and W-CDMA standards for 3G.

2.3 Japan

The dominant SDOs are The Telecommunication Technology Committee (TTC) and the Association of Radio Industries and Businesses (ARIB) - currently collaborating with other regional standards organizations to create 3G standards.

2.4 Korea

The dominant SDOs is the Telecommunication Technology Association (TTA) - currently collaborating with other regional standards organizations to create 3G standards.

2.5 China

The dominant SDOs is the China Wireless Telecommunication Standard (CWTS) organization - currently collaborating with other regional standards organizations to create 3G standards.

3.0 National SDOs

National SDOs will not play a prominent role in the development of 3G standards. Typically the role of the SDOs is to ensure that the systems comply with basic health, safety, and radio spectrum regulations, to test for compliance with the published standards, and to ensure compatibility between the various standards. The key role for National SDOs is to act as the "voice" of a national government at international events such as ITU meetings.

In Canada, a number of organizations handle these roles:

- Telecommunications Standards Advisory Council of Canada (TSACC);
- Canadian National Organization for the ITU; CNO TG8/1 is the Canadian national preparatory group for participation in ITU-R TG8/1 dealing with IMT-2000 (3G) air interface recommendations and related issues, specifically 3G radio spectrum;
- Standards Council of Canada (SCC).

4.0 Technology-Specific Groups

There are several groups, which drive the development of technical standards, which are based on a particular technology with the objectives of accelerating and consolidating the work effort. Membership in these groups is generally open to any and all interested parties. Here are thumbnail descriptions of some of the active groups.

4.1 3GPP (3G Partnership Project)

Collaboration between ETSI, ARIB, TTC, TTA, T1, and CWTS to develop 3G standards based on the W-CDMA standard. ETSI will develop and publish technical standards, which are based on user requirements specified by the member organizations.

4.2 3GPP2 (3G Partnership Project 2)

Collaboration between TIA, ARIB, TTC, and TTA to develop 3G standards based on the CDMA2000 standard. TIA will develop and publish technical standards, which are based on user requirements specified by the member organizations.

4.3 IEFT (Internet Engineering Task Force)

A global organization that develops de facto standards for the Internet Protocol [IP]. Because the IP is such a significant element in 3G networks, their role is significant. The IETF has created several working groups to deal with the special issues related to using the Internet in a wireless environment. Several “wireless” enhancements to the IP are in the works to support addressing, handoff, roaming, security, authentication, and the “micro-browsers” that are envisioned for mobile phones.

4.4 WAP (Wireless Application Protocol) Forum

An organization that develops and supports 'open' protocol to support wireless applications. WAP is a de facto standard for providing Internet and advanced telephony services on any type of wireless device. WAP is generating tremendous interest in the wireless community as it promises to trigger the type of entrepreneurial and technical creativity that has spurred the growth of conventional (non-wireless) Internet applications.

4.5 CDG (CDMA Development Group)

A consortium of companies who have joined together to lead the adoption and evolution of CDMAOne and CDMA2000 systems around the world. The CDG is essentially an industry association. Their 3G objectives are to promote the technology by developing new capabilities and by encouraging network operators and manufacturers to support the technology. They are working closely with 3GPP2 who will develop and publish the standards, which are driven by CDG user requirements.

4.6 UWCC (Universal Wireless Communications Consortium)

A consortium of companies who have joined together to lead the adoption and evolution of TDMA (IS-136) systems around the world. The UWCC is essentially an industry association. The objectives are to develop enhancements to the IS-136 technology, most likely evolving towards an EDGE/GPRS/W-CDMA system. UWCC is dealing directly with ETSI to perform standardization, and there are efforts in other bodies to move EDGE into 3 GPP.

4.7 OHG (Operators Harmonization Group)

An ad hoc group comprised primarily of network operators. The group's objective is to harmonize the two "competing" 3G CDMA-based technologies (CDMA2000 and W-CDMA) into a single "global" standard. Network operators (especially existing CDMAOne network operators) would benefit from harmonization because of improved backward compatibility with existing 2G networks.

4.8 3G.IP (Third Generation. Internet Protocol) Focus Group

An ad hoc group comprised of network operators and manufacturers. The group's objective is to foster the development of 3G networks which are based on Internet Protocol. It seeks to accomplish this objective by establishing a common set of user requirements, by influencing the development of technical standards through the 3GPP/ETSI channel, and by collaborating on implementation issues.

4.9 Bluetooth

A special interest group comprised of manufacturers and other interested parties. Founding companies were Ericsson, IBM, Intel, Nokia, and Toshiba. There are approximately 1000 member companies. The group has created an ad hoc standard for a small form-factor, low-cost radio solution providing links between mobile computers, mobile phones and other handheld devices and connectivity to the Internet. Commercial products using Bluetooth technology expected to be available in 2000.

4.10 Wireless Knowledge

A joint venture between Microsoft and Qualcomm operates an Integrators Alliance Program (IAP) for software partners. The group has a wireless data/messaging product called "Revolv", which they are promoting to the industry. Wireless Knowledge also participates in WAP.

GSM Global Roaming Forum

The GSM Association membership consists of more than 540 2G and 3G wireless network operators and key equipment manufacturers/suppliers to the wireless industry. Because multiple incompatible technologies co-exist in different parts of the world and GSM is present on nearly every continent, the GSM Association created the GGRF (GSM Global Roaming Forum) at the GSM Plenary #42, in order to bridge the technology gap and to focus on issues related to Inter-standard Roaming. The GGRF provides a collaborative forum for wireless network operators and equipment manufacturers/suppliers to work in close co-operation to address and resolve those issues particularly relevant to Inter-standard Roaming. Inter-standard Roaming is the use of any wireless network, regardless of the technology or standard.

The GSM Global Roaming Forum develops technical requirements, builds commercial

agreements, and establishes implementation guidelines for Inter-standard Roaming between GSM and other wireless technologies such as TDMA, CDMA, iDEN, and Tetra. Areas of focus include:

- interoperability issues related to networks and signaling , terminals and smart cards;
- functional testing and complete end-to-end testing; and
- inter-carriers roaming agreements including billing record exchange and settlements plus fraud control and management .

The GGRF adapts GSM Association standards so that they are suitable for use in Inter-standard Roaming and works closely with the relevant GSM Association Working Groups on documentation of standards and harmony of purpose.

Although 2G interoperability is the main focus, the GGRF is also building for the convergence with 3G systems. Membership is open to GSM and non-GSM network operators and suppliers (billing providers, clearinghouses, manufacturers) with existing or planned Inter-standard Roaming products and services.

Contact Jennifer Willis or Niamh Clancy, Membership Co-Ordinators at "membership@gsm.org" for any queries on joining the GSM Association or at "roamingforum@gsm.org" for queries on joining the GSM Global Roaming Forum. For any comments on membership or need for assistance, contact GSM Association Customer Care Group at "customercare@gsm.org".