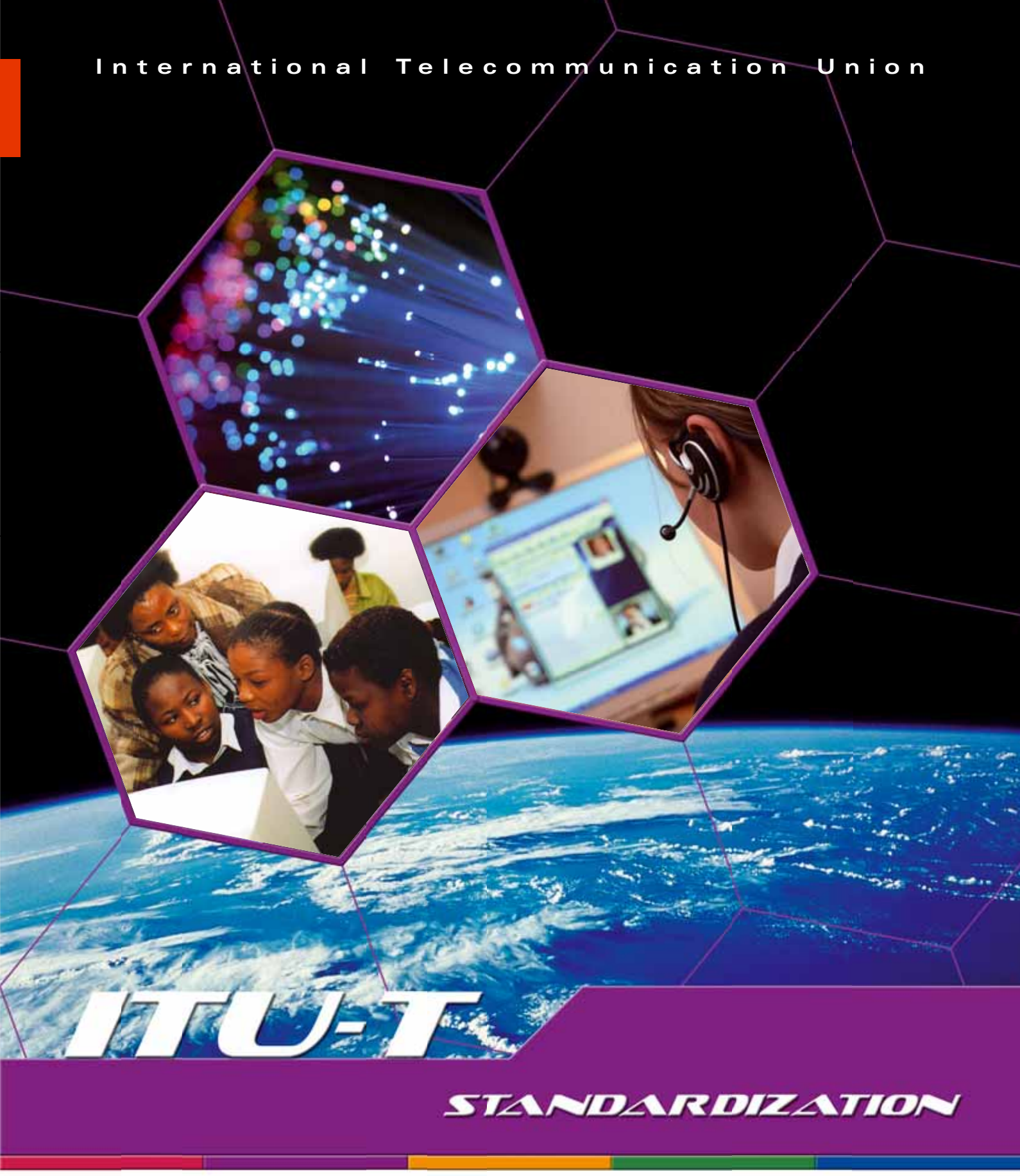
International Telecommunication Union



ITU-T

STANDARDIZATION

Helping the world communicate

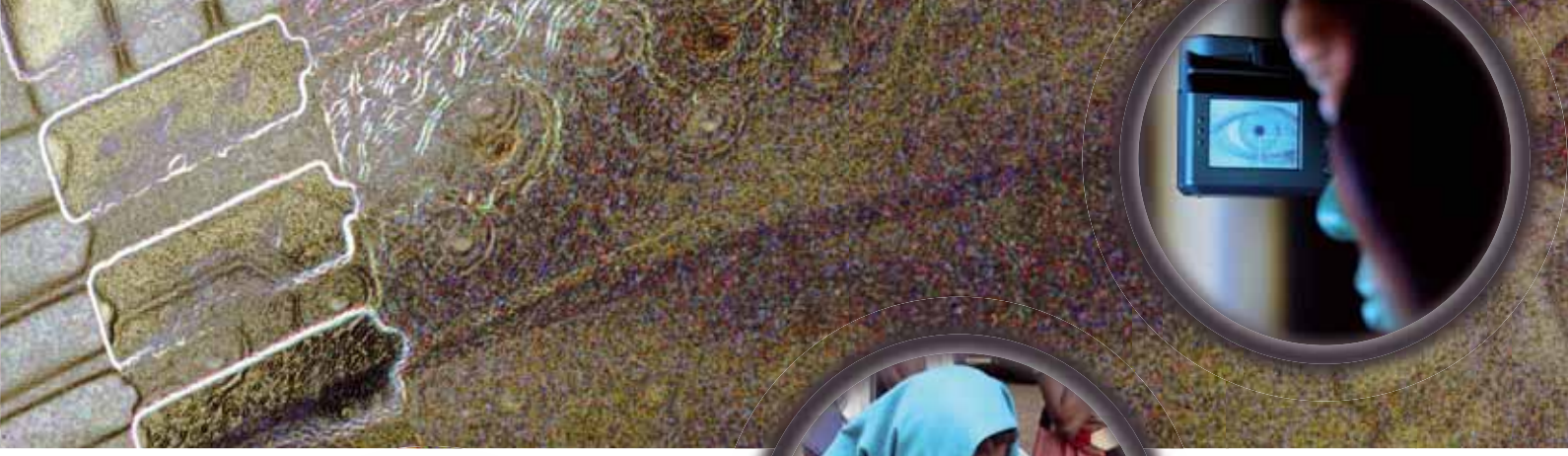
International Telecommunication Union

FOREWORD

Telecommunication plays an enormous role in our day-to-day lives and, if it wasn't for ITU standards, no form of telecommunication, whether fixed or mobile telephony, cable, DSL or modem-based Internet, would be possible. Don't underestimate what that would mean. Without telecommunication business would grind to a halt, banks would not be able to transfer money, orders could not be placed and air traffic control systems would fail.

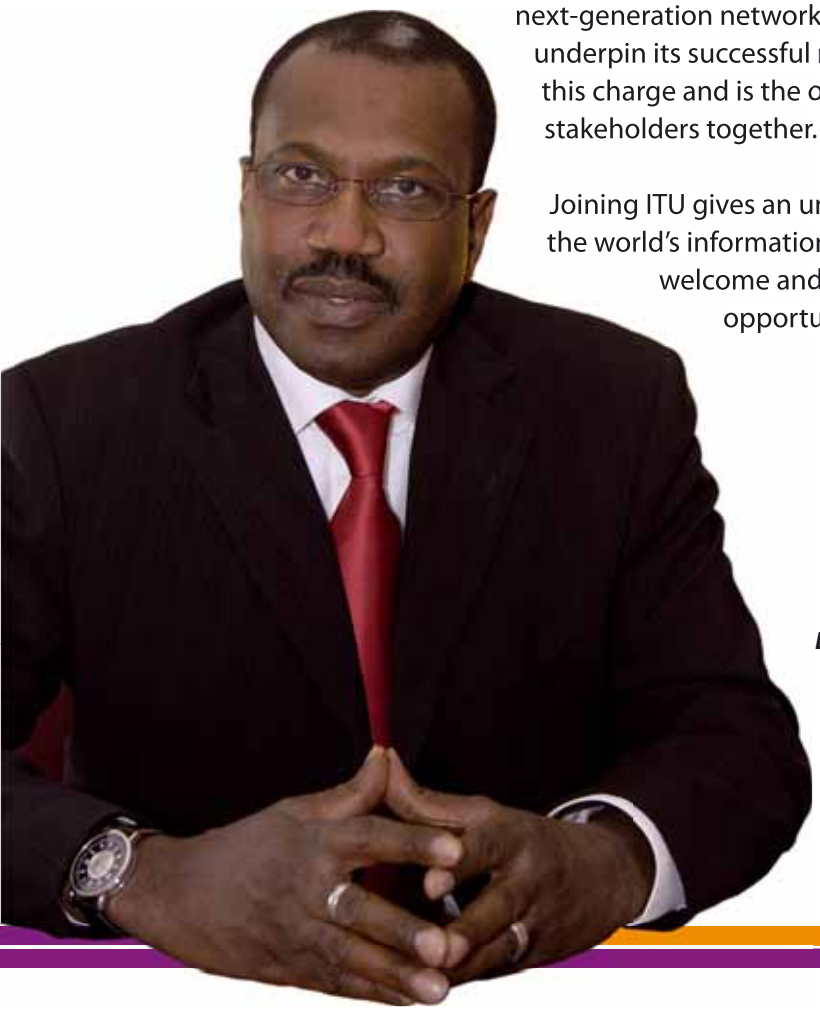
Telecommunication also has a vital role to play in emergency communications and disaster relief and has been a crucial tool in international diplomacy. Simply put, life without telecommunication is almost unimaginable. And as we have moved from fixed-line telephony into mobile telephony and the Internet, so has ITU's work moved to accommodate and underpin these technologies that are becoming more and more important to the world economy.

Standards in ITU are developed taking into account the needs of all stakeholders. Uniquely for an agency within the United Nations system a large proportion of work is done by the private sector. The needs of developing countries are a particular concern and a major focus as we work towards the goal of connecting the world.



The telephone system is unarguably one of the engineering marvels of all time, and now another seismic shift for worldwide communications – the so called next-generation network (NGN) – demands new standards that will underpin its successful rollout. I am proud to say that ITU is leading this charge and is the only global entity capable of bringing all the stakeholders together.

Joining ITU gives an unprecedented chance to be part of shaping the world's information and communication technologies. I welcome and encourage you to explore this world of opportunity.



Dr Hamadoun I. Touré
Secretary-General
International Telecommunication Union

WELCOME TO ITU-T

Standards play a strategic role in fostering innovation and competitive markets. Business, governments and academia use ITU-developed standards to bring products and services to market rapidly, build order in the marketplace, generate trust and enhance safety. Manufacturers, network operators and consumers benefit in terms of lower prices and increased availability by reducing technical barriers and promoting compatibility between systems.

ITU is justly proud to be the world's leading developer of standards for information and communication technologies (ICT). It is the oldest activity of the Union, dating back to its foundation in 1865, and we provide our members with excellent state-of-the-art technical support and meeting facilities that can cater for groups from 50 to 2000.

ITU standards are developed in a unique contribution-driven and consensus-based environment by industry and government members. Over 3000 ITU-T standards underpin most of today's telecommunications/ICT applications, and over 250 new or revised standards are approved each year. More than 90 per cent of these are in effect approved by the industry participants, and the average time for approval is now only nine weeks.

Participation in the ITU standards process gives you direct influence over the technological forces that are shaping the ICT industry. It allows early access to many technical resources and standards in development. Taking part will help to ensure that your products are safe, reliable and compatible on a global scale.

Membership allows for unparalleled networking opportunities with the best talent in the industry and representatives of over 700 private sector entities as well as 191 governments and their regulators.

ITU-T's flexible approach to making standards addresses large, small and medium businesses in both mature and fledgling markets. ITU-T's secretariat will be happy to answer any of your questions on how we can meet your needs. We look forward to hearing from you.

Malcolm Johnson
Director
ITU Telecommunication Standardization Bureau

BRIDGING THE STANDARDIZATION GAP

A major concern for ITU-T is extending the benefits of its work to a wider audience, particularly in the developing world. This is an important part of bridging the so-called standardization gap.

As well as researching new tools which will allow remote participation, establishing regional groups, and holding more meetings in the regions, ITU-T conducts a series of forums in developing countries on hot topics in standardization. It promotes the message that the standardization process is open to developing countries and it is important for them to participate.

Taking part in the standardization process for new technologies will allow developing countries to accelerate the deployment of new networks and services. With next-generation networks (NGN), for example, standards work is lowering the capital cost of deployment in the network core. Operating costs in NGN are also significantly lower than in circuit-switched technologies enabling a more rapid expansion of network capabilities. NGN offers the opportunity for developing countries to jump several generations of technology. Taking into account the needs of these countries in producing its standards, ITU-T will seek to provide assistance in deploying them.

Standards are an essential tool in bridging the digital divide and bring vital aid to developing countries in building their infrastructure and encouraging economic development.
www.itu.int/ITU-T/gap/

CYBERSECURITY

ITU has been charged by the World Summit on the Information Society (WSIS) to build confidence and security in the use of information and communication technologies (ICTs). Only a globally focused strategy can address the challenge of cybersecurity, and, standards have a crucial role to play.

Standardization pools worldwide resources towards securing ICT assets – whether virtual or physical. It brings together all interested parties to work towards a common goal.

In the real, non-virtual, world, risk management is well understood.

And so the infrastructure – legal, financial and physical controls – has been developed to protect against theft, fraud and other kinds of attack. The virtual world should be no different. Standards can provide the backbone for this risk-management infrastructure.

One of the most important security standards in use today is X.509, an ITU-T developed Recommendation for electronic authentication over public networks. Without wide acceptance of the standard, the rise of e-business would have been impossible.

Investment in security is money in the bank.

And investment in the making of security standards means that manufacturers, service providers and other stakeholders can be sure that their needs and views are taken into account.

Quite simply, standards give businesses the systematic approach to information security that are needed to keep network assets safe. ITU-T is in a unique position given its international scope and the fact that it brings together the private sector and governments to coordinate work on standards and influence the harmonization of security policy worldwide.
www.itu.int/ITU-T/studygroups/com17/ict/

QUALITY OF SERVICE

Next-generation networks (NGN) pose new challenges for planning and achieving the end-to-end performance levels necessary to adequately support a new and wide array of user applications. ITU standards for quality of service (QoS) allow telecoms operators to capture important information that can help shape current and future services. QoS is seen as a key area to address in IP-based NGN, especially as more carriers announce plans to carry voice traffic using the protocol.

Network operators and service providers around the world rely on ITU-T standards to provide the parameters necessary to offer services now and in the future.
www.itu.int/ITU-T/lighthouse/sg12

MULTIMEDIA

Since the publication of ITU-T's first video codec in 1984, ITU standards have dominated the digital video content arena. ITU's latest video coding standard, H.264/AVC, is the first truly scalable video codec delivering excellent quality across the entire bandwidth spectrum — from high definition television to videoconferencing and 3G mobile multimedia. It has been widely adopted by industry, for example in next-generation DVD and mobile telephony applications. IPTV is currently a hot topic with experts examining what standards will make the global roll-out of this new service a success.
www.itu.int/ITU-T/lighthouse/sg16

EMERGENCY COMMUNICATIONS AND SAFETY

When disaster strikes, functional communications are essential to respond to the emergencies that arise. Standardized early warning is backed up by call prioritization specifications that ensure emergency response is efficient and timely. Network restoration and management during emergencies is also addressed by many of ITU's standards.

ITU's work in the field of safety has led to standards that protect telecommunication installations against damage and malfunction due to electromagnetic disturbances, such as those from lightning. It has also produced standards for the protection of telecommunication personnel and users of telecommunication networks.
www.itu.int/ITU-T/emergencytelecoms/
www.itu.int/ITU-T/lighthouse/sg05

ACCESSIBILITY

Not all of us have the same skills or abilities to communicate – be that due to physical handicaps or to cultural or situational reasons. ITU has taken a lead in ensuring that telecommunication system design accounts for accessibility needs. ITU has produced human factors specifications, and telecommunications accessibility guidelines that provide system designers, service providers and operators with guidance for providing all-inclusive communications.
www.itu.int/ITU-T/studygroups/com16/accessibility/

NUMBERING AND INTERCONNECTION

The numbering standard ITU-T Recommendation, E.164 has played a key role in shaping the telecom networks of today. E.164 provides the structure and functionality for telephone numbers, and without it we would not be able to communicate internationally.

Equally as important is E.212, which allows a roaming mobile terminal to be identified in another network and, subsequently, the querying of the home network for subscription and billing information.

ITU-T is also tasked with the complicated job of recommending some principles for the harmonization of international interconnection rates. Interconnection rates are the costs between telecommunication service providers when linking networks for the exchange of traffic.

ITU-T's aim is to keep rates fair and as low as possible, without compromising service. Interconnection rates are a key concern for our members and, in particular, for the developing world.
www.itu.int/ITU-T/lighthouse/sg02
www.itu.int/ITU-T/lighthouse/sg03

OPERATIONS

As service offerings and networks become more complicated, so the need for a more business-oriented framework has developed, one that includes applications such as customer care, service fulfilment, service assurance, and charging and billing in support of element, network, service, and business management. Standards work in this area is crucial. Standards produced by ITU-T are helping operators worldwide to integrate solutions quickly and cost-effectively into the operating environment.
www.itu.int/ITU-T/lighthouse/sg04

NGN

The all-encompassing nature of next-generation networks (NGN) means that ITU-T members have devoted considerable energy to this topic since 2003. And, clearly NGN will continue to dominate ITU-T's work agenda for some time.

The shift from the traditional, circuit-switched networks to a fundamentally different infrastructure presents a massive challenge for the telecoms industry. It is one of the most complex transitions ever to have occurred in the industry.

As in the past, when seismic shifts transformed the simple world of the telegraph to create wireline telephony, followed by satellite systems, digitalization, fibre optic networks, broadband and cellular mobile, ITU-T will play a central and critical role in ushering in this new converged environment. As the specialized UN agency for ICT, the Union will remain at the forefront of coordinating global efforts in this field, promoting technical excellence and impartiality in standards development, as well as in building the consensus needed to ensure that new technologies and equipment are embraced worldwide.

ITU-T's work in packet-switched technologies predates by many years its work on NGN. A highlight of ITU-T's work at the core of the network, considered by many as the cornerstone of modern telecommunications, is the SS7 signalling system. SS7 paved the way for efficiently operating international telecommunication networks.
www.itu.int/ITU-T/ngn/

ACCESS, TRANSPORT

ISDN (integrated services digital network), SDH (synchronous digital hierarchy) and DSL (digital subscriber line) are all familiar abbreviations to ICT professionals and all approved as international standards by ITU-T.

Without ITU-T's modem standards the Internet may not enjoy its current state of ubiquity. Before the advent of ISDN and broadband technologies, Internet access would have been dial-up using a modem built according to ITU specifications. If proprietary standards had been adopted, the Internet's development could well have been significantly hampered. ADSL has given people around the world their first taste of broadband and VDSL 2, which takes legacy copper networks to new limits, is now being deployed by operators worldwide.

ITU-T is also pioneering work in bringing Ethernet and MPLS into core networks. Its work on passive optical networks (PONs) provides an effective way of implementing fibre and is a crucial step towards all-optical networks. Wave division multiplexing (WDM) technology is another example of technology in which ITU-T standards have played a key role.
www.itu.int/ITU-T/lighthouse/sg15

MEMBERSHIP

In addition to the Study Groups the World Telecommunication Standardization Assembly defines general policy and adopts working methods and procedures for ITU-T. Convened every four years it defines the next period of study for ITU-T. The more regularly meeting telecommunication standardization advisory group's (TSAG) work is to act as an advisory body to the study groups, membership and staff of ITU-T, keeping in mind the needs of all members, from developed and developing countries, and from industry and governments. It is responsible for the working procedures defined and the organization of the ITU-T work programme. It performs an extremely important function within ITU-T in following up on the implementation of the work programme and advising the Director of ITU-T's secretariat (the Telecommunication Standardization Bureau - TSB).

Membership of ITU-T offers an opportunity for the private sector to join with international administrations to shape the future of ICT in an open, fair and transparent environment. As well as opportunities to network and influence the creation of worldwide standards, members can get unique returns on investment (ROI) by being able to implement technologies ahead of the pack, and reach products and services to market quicker than their competitors. Exposure on an international platform offers unbeatable marketing opportunities.

ITU-T's global image comes with the badge of quality and efficiency that ITU as a specialized agency of the United Nations lends to the sector.

In ITU-T, work is carried out in Study Groups and Members are entitled to unlimited participation in any or all of ITU-T's Study Groups. Associate members can participate in only one specific Study Group.

OTHER WAYS TO PARTICIPATE

ITU-T's strives to take into account the needs of all stakeholders in the development of its standards. A number of ways have been developed to allow the input of non-members into ITU-T work.

ITU-T workshops have long been a popular way of progressing existing work areas and exploring new ones. These free-of-charge events augment the work of the study groups by proposing new topics and seeking the views of non-members and other standards developers.

Workshops have focused on a broad variety of topics including telemedicine, the fully networked car, NGN, grid and many other areas. Events may be held anywhere in the world and are increasingly seen as a means of outreach to developing countries.

ITU-T Focus Groups provide a more hands-on way to contribute to standardization work. They allow the participation of any stakeholder and they can adopt their own working methods in order to develop input for ITU-T Study Groups and eventual publication as ITU-T Recommendations.

Web addresses

Homepage: www.itu.int/ITU-T/

Communications centre: www.itu.int/ITU-T/lighthouse/

Membership: www.itu.int/ITU-T/membership/

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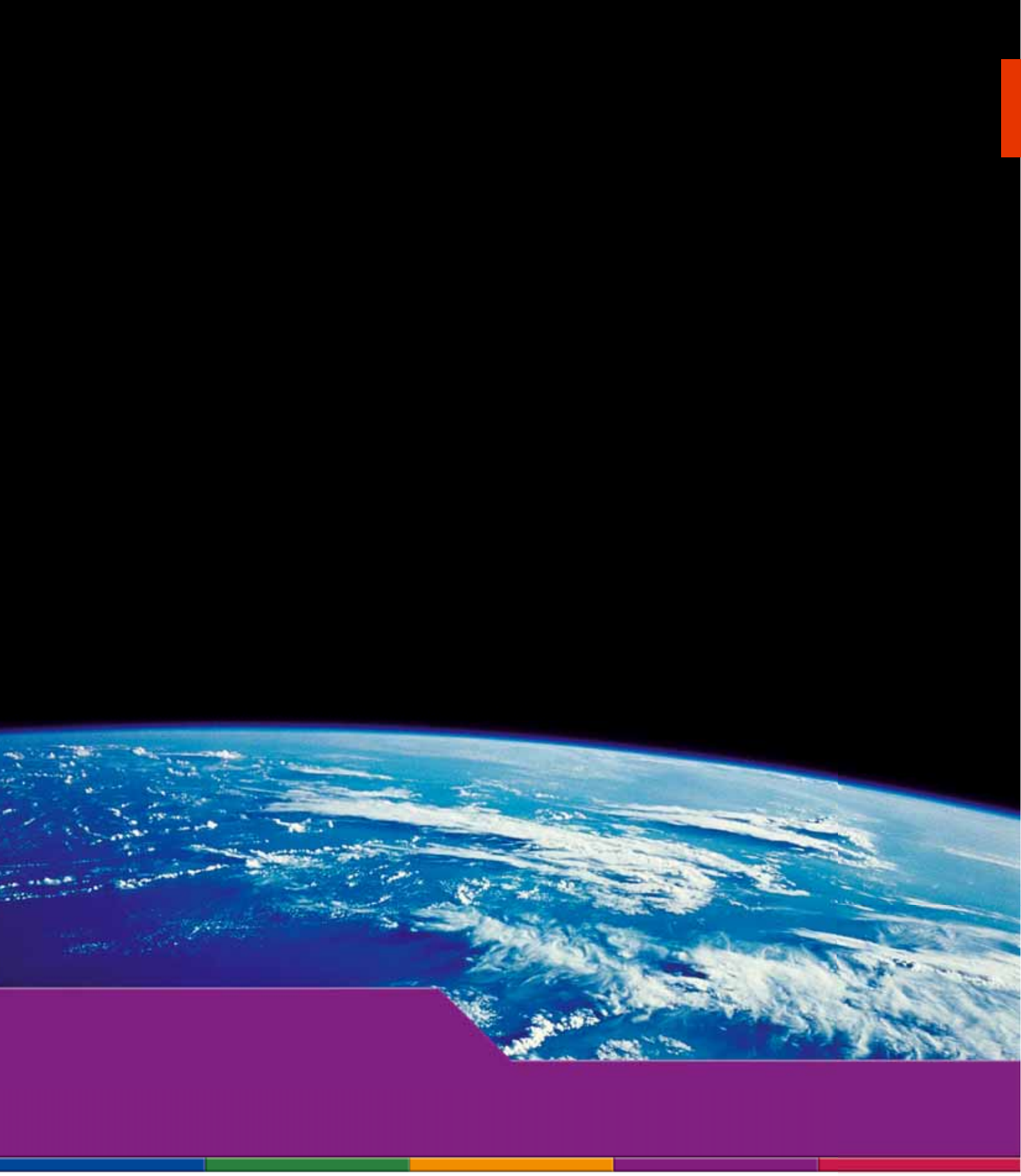

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