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(ITU) للاتصالات الدولي الاتحاد في والمحفوظات المكتبة قسم أجراه الضوئي بالمسح تصوير نتاج (PDF) الإلكترونية النسخة هذه والمحفوظات المكتبة قسم في المتوفرة الوثائق ضمن أصلية ورقية وثيقة من نقلًا.

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Newsletter of the International Telecommunication Union

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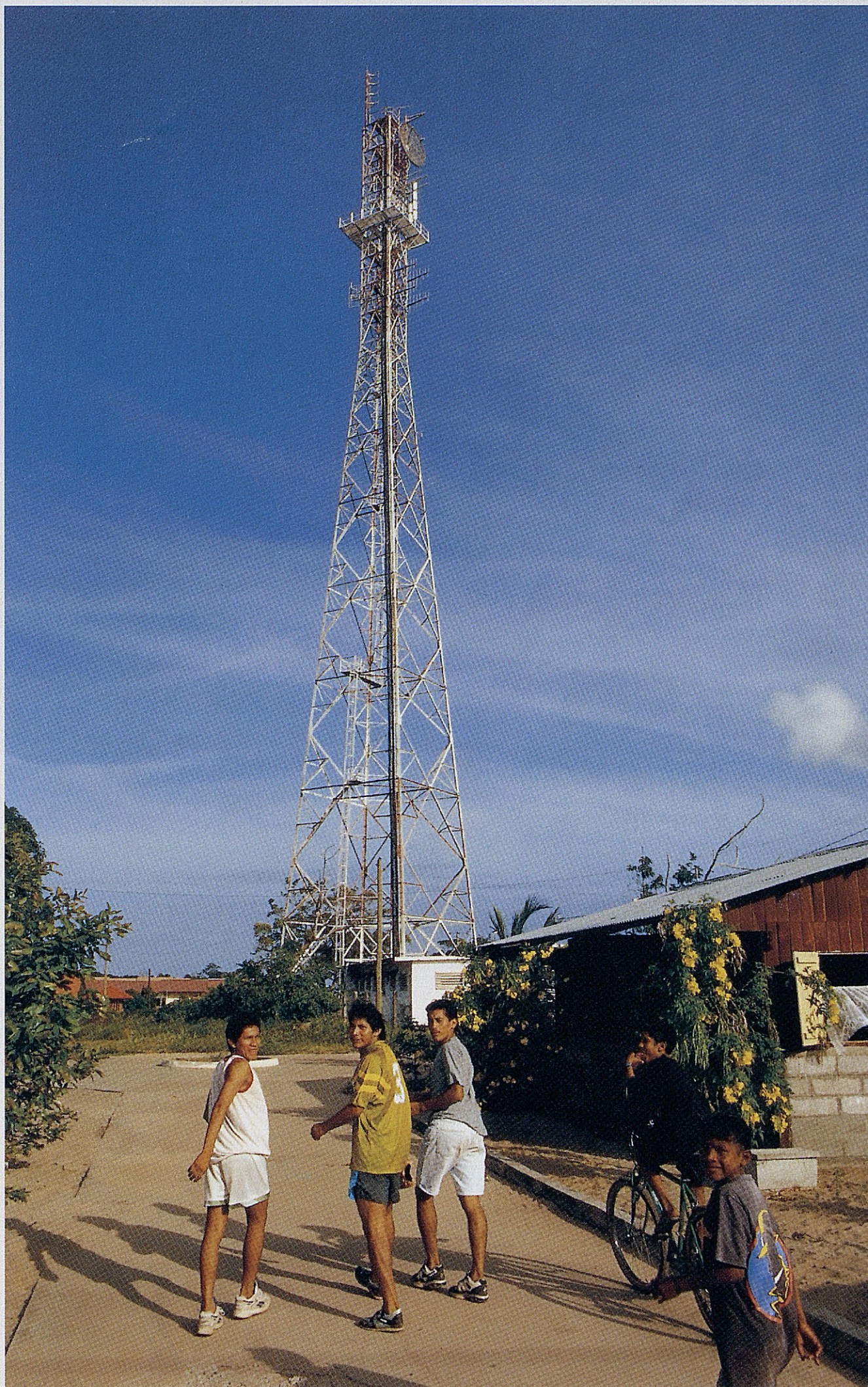
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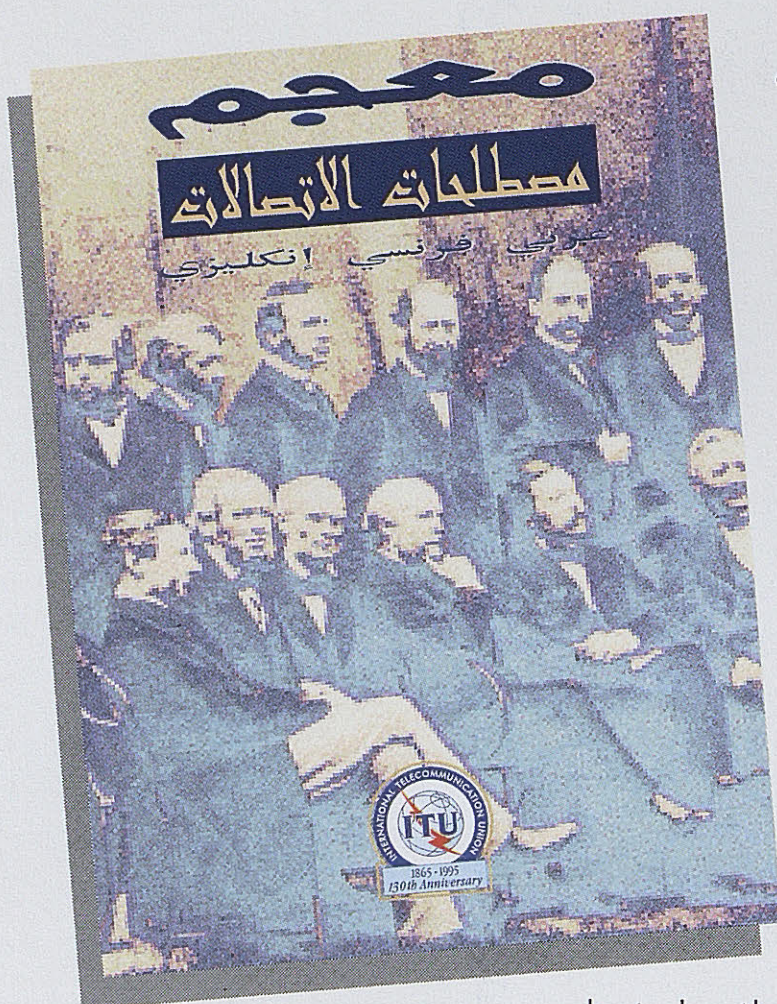
TELECOMMUNICATION JOURNAL

1995

New

Lexicon of telecommunication terms

*The key reference work for all Arabic-speaking engineers,
technicians and translators*



- Over 10 000 telecommunication terms in three languages (Arabic, English and French)
- 1000 pages
- Available from September 1995
- Catalogue price: 50 Swiss francs

The *Glossary of telecommunication terms* was published in 1987 by the International Telecommunication Union (ITU) in response to a practical need expressed by the Arab countries. Following the Glossary's undisputed success and in the light of the growing demand for translation of specific, modern vocabulary into Arabic, the ITU is now proud to present the 1995 edition of the *Lexicon of telecommunication terms* in Arabic, French and English.

There are special reasons for publishing the Lexicon this year: 1995 marks not only the 130th anniversary of the ITU, but also the 10th anniversary of its Arabic Translation Service. The Lexicon is thus the result of an ongoing effort on the part of the ITU to promote Arabic as one of its six official languages. It is also intended to help the Arab countries to bring their different languages together and harmonize the technical terminology used.

The *Lexicon of telecommunication terms* will provide valuable assistance to Arabic-speaking engineers, technicians and translators in search of the Arabic equivalent of terms found in the technical literature of the rapidly changing world of telecommunications. The terms have been selected on the basis of their general nature and recency, their regular appearance in ITU-D, ITU-R and ITU-T (Development, Radiocommunication and Standardization Sectors) texts, and their relevance to the structure and work of the ITU.

The work comes in a single, handy volume, for fast, easy reference. It comprises two sections: Arabic-French-English and English-French-Arabic. In all, it contains over 10 000 telecommunication terms.

The Lexicon is the result of a joint effort by the Arabic translation, the terminology and the technical editing services and by the Information Services and Common Services Departments. Most of the English and French terms are taken from the ITU TERMITE (TERMInology for TElecommunications) terminology base.

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For the ITU, 1995 has been rich in developments. After the Kyoto Plenipotentiary Conference, the ITU had an approved Strategic Plan and some new faces in the management team. In its first year in operation, the new ITU has seen its membership grow, particularly in the Development Sector, and has organized a record-breaking TELECOM 95 exhibition and a World Radiocommunication Conference with colossal stakes. We have done our best to report faithfully on these events by providing the most up-to-date, balanced information possible on the Union's activities and day-to-day existence.

But we too must change in order to serve you better. Starting with the first issue of 1996, our journal will have a new look with a streamlined formula.

To begin with, we will have a more manageable title spelling out what our real business is: **ITU News**. The format and layout will be updated and improved, and we will leave room for advertising which may be of interest to you. In the rapidly expanding telecommunication world, there will be plenty of topical items to cover, such as mobile personal communications, the multimedia or new forms of cooperation for telecommunication development in developing countries.

By evolving in this way, **ITU News** will be adapting to the changes which have occurred in the Union since the Kyoto Plenipotentiary Conference.

In 1996, the first World Telecommunication Policy Forum will take place as a direct sequel to the Kyoto Conference, with the prime focus on global personal communication systems.

Another major event will be the World Telecommunication Standardization Conference, at which many standards of topical relevance will be adopted and at which the shape of the Standardization Sector's programme of activities will be turned towards the future.

There is a full programme lined up for 1996 and **ITU News** will keep you informed throughout the year.

The Editor

TELECOM 95: last impressions

WHAT is there left to say about TELECOM 95, except perhaps that one month after the event its effects are still being felt.

What it has left behind is the impression of grandeur given by most of the stands, the eager, enquiring crowds, the greater accessibility of demonstrations (multimedia has become part of our lives!), and the recognition given (at last!) to developing countries and to the physically underprivileged members of our society.

According to Lili Rison, coordinator of the TELECOM 95 project, "the powerful exhibition, with 1066 exhibitors, and wide-ranging FORUM, drew much larger crowds than originally anticipated — the more than 189 000 participants represented an 18% increase over the number of attendees at TELECOM 91.

But what distinguished TELECOM 95 from other events was the willingness of the ITU and a select group of exhibitors to share their knowledge and capabilities with the many developing countries, Members of the Union.

The Programme for Development and the newly industrializing countries (NIC) pilot

project are an exemplary form of cooperation and eagerness to transfer information. Together with the "1 in 10" stand for people with disabilities and the elderly — a 500 million-person market throughout the world — these undertakings typify TELECOM 95, which was the most comprehensive, the most humanitarian of all the 17 world and regional TELECOM events staged to date".

More generally speaking, it is hard to mention any one stand in particular. All exhibitors were equally ingenious in the way they built their stands, presented their products and demonstrated them to the public. It would have been nice to give some idea of the economic returns they obtained for their trouble, but, beyond the rather extravagant and in any case unverifiable rumours, the true figures are a well-guarded secret.

TELECOM 95 has barely closed its doors, yet the applications for TELECOM 99 are already exceeding all expectations.

Meanwhile, AMERICAS TELECOM is due to take place in Rio in 1996.

Don't miss it! ■

The Forum 95

THE VIIth World Telecommunication FORUM closed its doors after enjoying an unprecedented success. FORUM 95 comprised two main events, the Strategies Summit and the Technology Summit, attended by more than 4000 delegates, and a special session devoted to Internet and on-line services, which attracted over 2000 visitors.

The Strategies Summit, the theme of which was *Breaking down barriers towards the global information society*, brought out the opposing tendencies that exist at the moment. On the one hand, the leading industrial groups and the developed countries sang the praises of global markets and universal appli-

cations and services. On the other, the developing countries and emerging industries expressed their dismay or their anger at the shortage of capital, the barriers to transfers of technology, the lack of training for their human resources, the difficulty of obtaining access to information — in other words, the constantly growing gap between the two worlds.

Apart from this, the presence of representatives of the computer world prompted a revival of the fierce debate on the place of intelligence in communication networks: for "telecommunicators", of course, it is the network that must be intelligent and provide all the supporting services necessary for a "down-

market" terminal (such as the telephone). For the computer people, on the other hand, intelligence should be concentrated in the terminal, i.e. the computer. Lawrence Ellison, President and Chief Executive Officer of Oracle Corporation, took an original approach: for him, the personal computer (PC) has had its day, giving way to the network computer (NC), which would share resources such as memory or applications made available via a remote host.

The Technology Summit followed the pattern of previous events. On the theme of *Convergence of technologies, services and applications*, 150 speakers followed one

another to the rostrum, stimulating debates that were rich in new ideas, and the question-and-answer sessions went on well beyond the time when the discussions were supposed to end.

Finally, the Special Session on Internet at the weekend really drew the crowds. Virtual reality, multimedia applications, three-dimensional visualization, but also electronic shopping, regulation and standardization of Internet, role of the ITU in relation to this new social phenomenon — these were some of the topics which for two days cast their spell over a fascinated public eager to surf on the World Wide Web. ■

Internet@TELECOM95

A special session of FORUM 95

AN estimated 2000 delegates attended the Internet@TELECOM95 session of the FORUM (7 and 8 October) to hear leading experts discuss the future of the Internet.

The event was organized by the ITU to discuss the growing importance of the Internet in the global information infrastructure. It was divided into three half-day sessions entitled: "The state of the Internet", "The Internet strategies of online service providers", and "Emerging Internet applications". Each session consisted of five keynote speeches followed by a panel discussion.

In his keynote address Pekka Tarjanne, ITU Secretary-General, warned that although the Internet was a hot topic of the moment and experiencing rapid growth it should not be forgotten that fully 97 per cent of Internet users are based in the high-income countries accounting for just 15 per cent of the world's population.

The theme of how to prevent a divide between "information rich" and "information poor" countries was widely discussed in one of the panels.

Vint Cerf, Senior Vice-President of data architecture at MCI and one of the original inventors of the IP protocol 25 years ago,



Messrs P. Tarjanne and V. Cerf

attributed some of the growth of the Internet to its open nature. He pointed out that all technical documentation has been made available on the network since the beginning of the research effort.

He also said that Internet growth was being driven by applications sitting on computers on the network periphery as testified by the explosive growth of the World Wide Web. Mr Cerf expressed concern about the strains being placed on the Internet architecture, especially by real-time applications such as voice and video. He felt that a time would come when Internet service providers would have to charge differently for these types of high bandwidth data streams.

Christian Huitema, a research director at the French research institute *INRIA* and former chairman of the Internet Architecture Board, predicted that the numbers of computers using the Internet could grow to a trillion by the year 2020. He said that the new version of the Internet Protocol, IP v6, made allowances for the embedding of computing devices in objects as small as light switches.

Anthony Bay, General Manager of the Microsoft Network Systems Group, said that Microsoft saw the Internet as "the single most important event in the computer industry since the IBM PC was introduced in 1981" and that adding application support for

Internet access was a top priority for his company.

John Petrillo, President, AT&T Business Communications Services, outlined AT&T's objective: namely to make the Internet universally accessible and as easy to use as the telephone — to bring the Internet to everyone.

A highlight of the two-day event was the presentation of a special ITU silver medal to Mr Cerf by Mr Tarjanne during a press conference. Mr Tarjanne said that although the medal was normally only given to Heads of State, the ITU had decided to make a special presentation to Mr Cerf because of his outstanding contribution to the development of the global information infrastructure, of which the Internet forms an integral part.

The proceedings of Internet@TELECOM95 are available in full from the ITU Internet World Wide Web server at: <http://www.itu.ch/telecom/pressdocs/sum.html>.

A printed version will be available in late November from the ITU Sales Office for CHF 50. To order contact: Regine Simond, tel.: +41 22 730 5651, fax: +41 22 730 5926, E-mail: simond@itu.ch.

Further information about this conference can be obtained from project leader Guy Girardet, Internet@TELECOM95. Tel.: +41 22 730 5229. E-mail: girardet@itu.ch. ■

The Programme for development

TELECOM 95 provided the first example of exhibitors pooling their resources, at the suggestion of the TELECOM Secretariat, to finance the trip to Geneva for around 170 senior telecommunication engineers and human resources directors from the 87 least developed or low-income countries.

Of all the countries invited, 84% (85% from the 49 least developed countries) sent participants. Needless to say, not all of them arrived on time, and some of them got lost in the halls of Palexpo when going to pick up their

hotel voucher, but, generally speaking, their arrival went off fairly smoothly. The delegates were very glad of this opportunity to visit TELECOM and extremely grateful to the sponsors and the ITU. They were also eager, as soon as TELECOM was over, to take part in the workshop on human resources and technology: the 143 participants were all present!

At the opening meeting, Sam Pitroda, adviser to the Prime Minister of India and President of WorldTel, advanced the key idea

that the developing countries should primarily rely on themselves in acquiring the communication resources essential to development. That point had been brought out quite clearly by the experience of his own country, India.

This seminal concept constituted the leit-motif of three days of intensive and concentrated activity. Round tables with eminent speakers, some of whom were from developing countries (Malaysia, Ethiopia and India), took place every morning.

However, the main work was carried out by the sub-working groups conducted by facilitators equipped only with large sheets of paper and coloured felt pens — a method which some people found unusual but

which was generally recognized as being effective.

The main topics covered included deregulation, markets, technology, finances, human resources and attitudes and reactions to change. Among the requirements ultimately identified, we might single out the following:

- definition of the role to be played by public authorities, legislators, operators and customers;
- self-help;
- regional cooperation;
- acquiring of new know-how and avoiding the brain drain;
- finally, more communication, both upwards and downwards, within the organization. ■

Helping hand for companies from newly industrializing countries

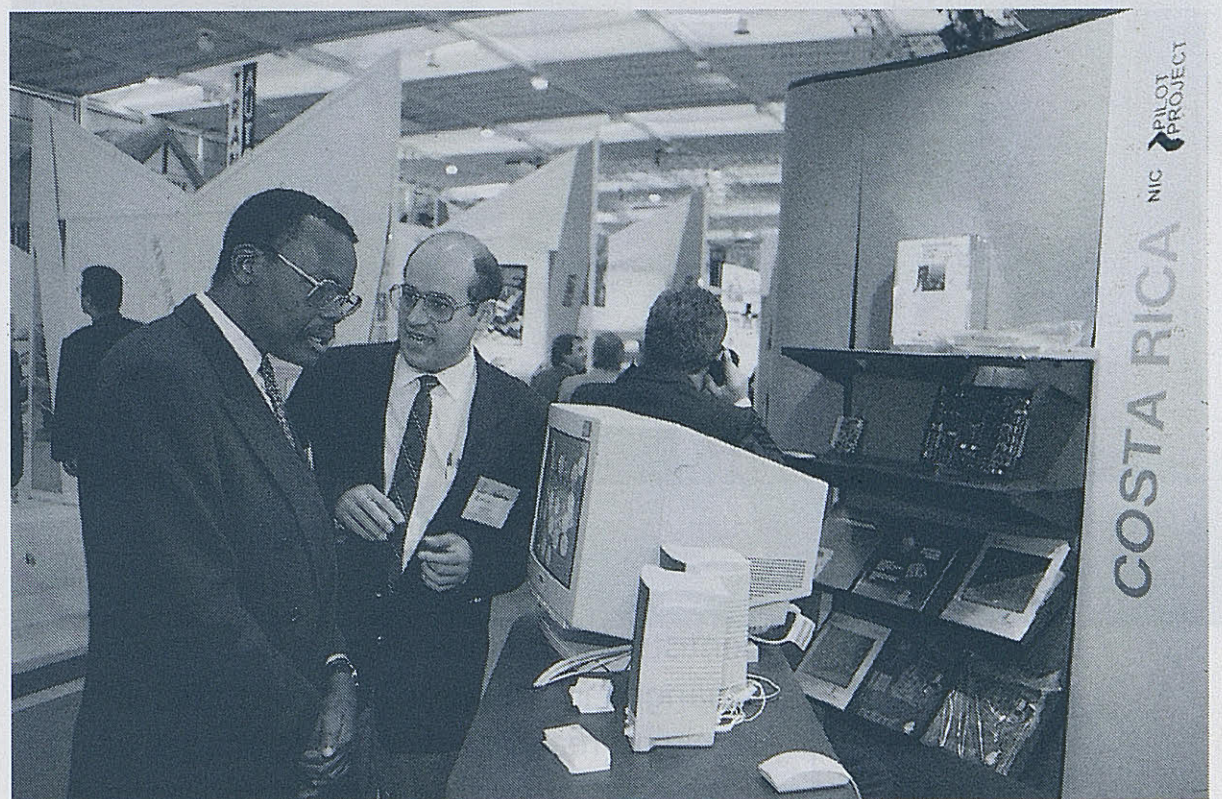
THE combination of technological progress and market liberalization is leading, in the newly industrializing countries (NIC), including those of the former USSR, to an upsurge of small companies which are dynamic, innovative and competitive.

These companies, however, are not well known and have difficulty in gaining a foothold in the "major" markets, for example, by taking part in exhibitions such as TELECOM, because of their small size and lack of funds.

Being aware of this problem and anxious that TELECOM should not be the sole preserve of the rich, the TELECOM Secretariat set up a pilot project, using private funds, which enabled 14 selected enterprises to promote their products and services and to establish contacts with other telecommunication enterprises and organizations.

The NIC stand, constructed in a modern, sober and harmonious style, with a colour scheme ranging from white to charcoal grey, livened up by the individual enterprises' logos,

posters and equipment, was a big hit with the media, businessmen, and even the general public.



Henry Chasia, Deputy Secretary-General of the ITU, visiting the NIC stand

The 14 exhibitors, coming from countries as different as Romania, Costa Rica, Malaysia and India, displayed great enthusiasm and good humour, creating a very congenial atmosphere on the stand.

They all, without exception, considered that their participation in TELECOM had been extremely useful. This is what Michael Alter, of *Micrologica SA* (Chile) had to say: "The con-

tacts we have made and the experience we have gained are invaluable and would have been impossible for a firm such as ours without the NIC project."

One sure sign of success: three firms — *Inventel* (Poland), *Hungarocom* (Hungary) and *Telecalmar* (Colombia) — have taken an option for TELECOM 99 and two others have announced their intention of doing so. ■

International teleconference on thyroid cancer in children

You cannot imagine the damage the Chernobyl fall-out has caused to children until you have seen real-time medical images broadcast from Russia. In what was the first satellite broadcast between Geneva and Obninsk (Russia), on the occasion of TELECOM 95,

The teleconference had a medical purpose: to have an international team of experts verify the diagnosis of thyroid cancer in three children, and to discuss treatment.

It highlighted a particularly serious problem associated with Chernobyl: the rise in the incidence of thyroid cancer among children. Children living in areas exposed to contamination with very high levels of the radio-nuclides of iodine are particularly vulnerable to thyroid gland disorders including malignant neoplasms.

Many areas of Russia, Belarus and the Ukraine were radiocontaminated as a result of the Chernobyl accident. Bryansk, Kaluga, Tula and Oriol are perhaps the most hit regions out of the 15 administrative regions of Russia. As of August this year, 57 cases of thyroid cancer were said to have been detected in children of Bryansk province alone. Several cases have been reported in neighbouring Kaluga and Tula provinces.

Dr Hiroshi Nakajima, Director-General of the World Health Organization (WHO), said after the teleconference: "Although carried by two satellites, [the] demonstration was a down-to-earth application of high technology. WHO intends to work closely with the International Telecommunication Union in realizing the International Programme on the Health Effects of the Chernobyl Accident (IPHECA) as regards health, telecommunications and informatics."



Messrs P. Tarjanne and H. Nakajima after the teleconference

scientists and medical experts in both cities exchanged information and consulted while examining real-time diagnostic images of patients suffering from thyroid cancer linked to the Chernobyl accident of 1986.

Pekka Tarjanne elected "Academician"

Each case of thyroid cancer identified within that programme has to be verified internationally. Telecommunications will be a powerful tool in that exercise.

The teleconference organized jointly by the ITU and WHO, follows a memorandum of understanding signed earlier this year by Pekka Tarjanne, Secretary-General of the ITU

and Dr Nakajima. The equipment used for the teleconference was provided by the International Maritime Satellite Organization (Inmarsat), *Morsviazsputnik* (the Russian Signatory to Inmarsat), Satelcom (United Kingdom), 7E Communications (United Kingdom), *BASIC Association of Japan*, and *CINV* (Obninsk). ■

The "1 in 10" stand for people with disabilities and the elderly

In his keynote address at the opening ceremony of TELECOM 95, Pekka Tarjanne, ITU Secretary-General, drew the attention of the entire audience to the existence of the "1 in 10" stand for people with disabilities and the elderly. He said "As we plan for the future, let us not lose sight of today's realities", and asked whether "those people in the world not having access to many basic necessities of a decent human life today, would be part of tomorrow's global information society? Or will it be global in name only — a 'virtual reality', open only to the privileged people of the world — an empire of illusion whose inhabitants are blind to the true state of *la condition humaine*? Today, part of this human truth is that half a billion people cannot live full lives because of their disabilities. Telecommunications can do something about this. Will it? I hope all of you will visit the "1 in 10" exhibit. It is my favourite part of TELECOM 95. It shows something of what can be done to end this terrible waste. It should inspire us all".

Many people did visit the "1 in 10" stand. It was good to see that the "forgotten millions" had not been forgotten. Those exhibitors who have put so much into producing equipment to enlighten the burden of that group of people for whom the "1 in 10" stand was designed, must feel proud of what they have so far accomplished. They are caring people, catering to the needs of those less able to help themselves — and because they care,

they will continue in their efforts to design and produce telecommunications technology which will alleviate those particular problems faced by people with disabilities, and the elderly, thereby extending their access to the world outside their homes.

The realization of this project was due to the generosity of a wide range of institutions, companies and exhibitors without whose

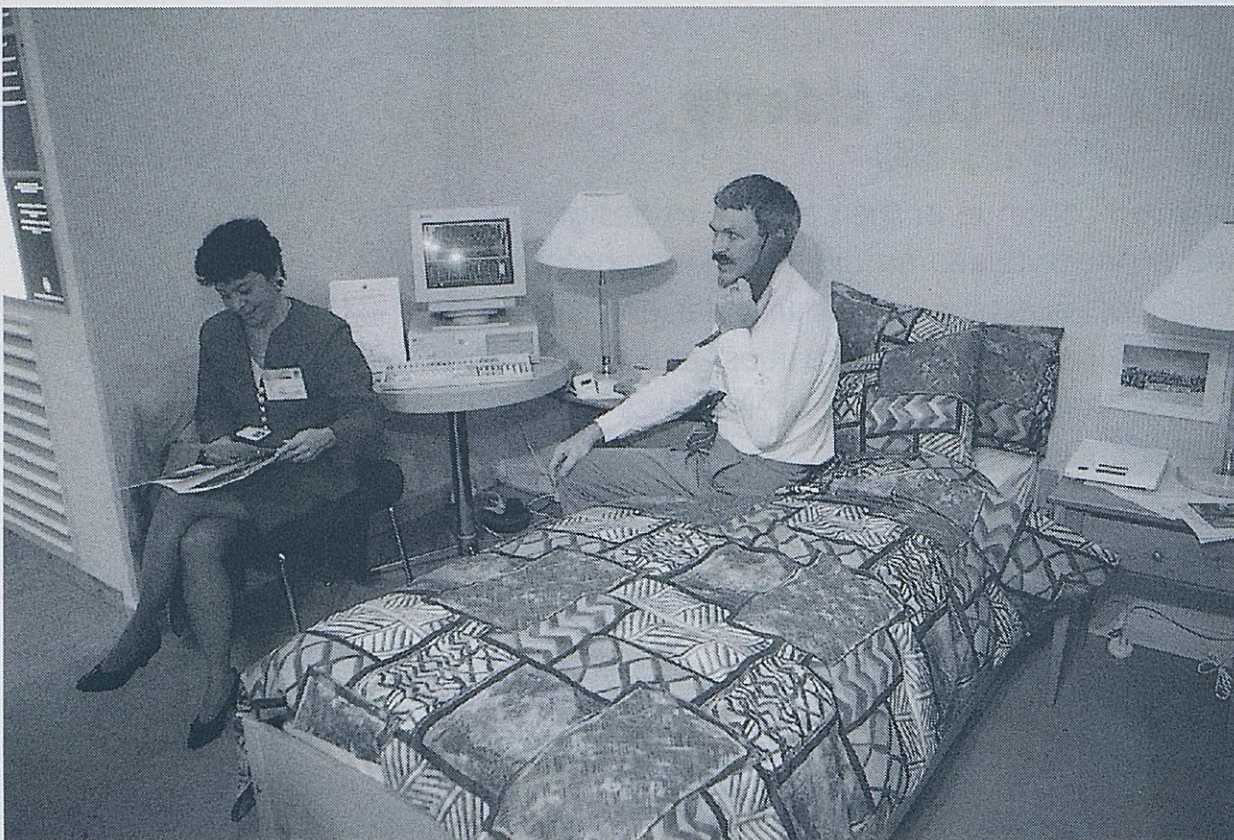


General view of the stand

human support, collaboration and sponsorship, this worthy cause at TELECOM 95 would

INSIDEINFO

not have been possible. The expertise and collaboration of *EPFL-de-LEMA* (Switzerland), *STAKES* (Finland), *Telia AB* (Sweden) and COST 219, a European project bringing together groups of experts concerned with the provision of telecommunications and teleinformatics facilities for and to people with disabilities and the elderly, added to this success story.



The "1 in 10" house actually comprised a living-room, dining-room, bedroom, kitchen, bathroom, studio and a connecting service centre. The commercially available supportive technologies were combined with tasteful furniture, in a peaceful environment, and demonstrated with a willingness that convinced disabled, interested, or commercial visitors, that the market contained a wide range of solutions to the needs of people with specific disabilities.

Talking newspapers and document reading stations, braille displays, page-turners, text telephones, tele-learning and even remote access to museums and home-shopping were displayed. Equipment, capable of simultaneous text-voice interpretation, came in many different versions. Telephones were handsfree, voice-controlled, voice recogniz-

able, push-photo, tactile-perceived, and textual. From video-screens we saw how interactive video-telephony and/or multimedia may be achieved by using non-traditional interfaces such as voice, gesture, etc. and how blind, or partially sighted people can deal with the general trend towards visual interfaces. Sign language communication, via interactive video and on-line translation was demonstrated. Alarms, whether they were vibratory, flashing, noisy or remote-controlled were all installed. Hearing-aid users were able to benefit from the inductive looping system installed to facilitate the reception of sound.

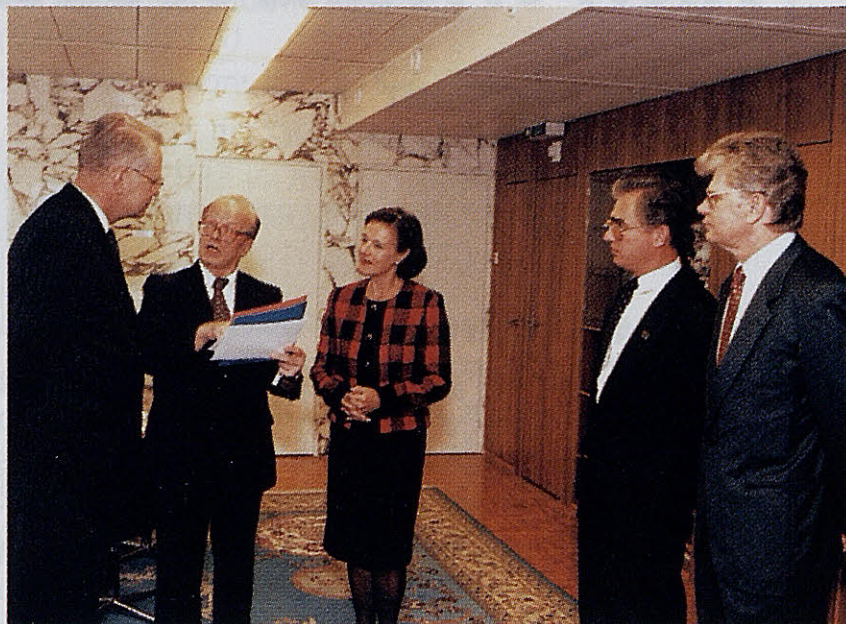
A mattress capable of monitoring vital respiratory, motor activity and cardiac functions, was a great favourite of weary visitors to TELECOM 95 — one had to lie motionless for up to 20 seconds before a factual recording could be obtained! A washing-machine for people requiring braille instructions was on show, just as was an award-winning reclining bath, and other adjustable bathroom equipment.

Some of the younger, disabled visitors felt really at home on the stand — one spent a whole day using the equipment, thereby encouraging more visitors to the stand; others returned for further information and demonstrations of what was available to them. It was revealing to see how by holding a "mouse" in a disabled hand, that person was able to be transported into another world, in contact with other people, via a computer linked to communication — more surprising was their knowledge of what technology was available to them, and what was in the pipeline for the future.

The "1 in 10" house obviously was a success. It was encouraging to know, from those who had provided equipment for the project, that integrated multi-media systems combining the basic modes of sound, text and moving pictures together with a wide range of telephone devices, offer the best chance of meeting the wide range of needs among all users. ■

Pekka Tarjanne elected "Academician"

ITU's Secretary-General, Pekka Tarjanne, was recently elected Academician of the International Informatization Academy — an independent self-governing public association of scientists, professionals, State and public figures in all branches of information production. The Academy distributes prizes to men and women for outstanding achievements and services in the field of "informatization of the world community". ■



A first in ITU: a management committee has been created

As a consequence of the changes requested by the Kyoto Plenipotentiary Conference last year, the Senior Level Management Committee (SLMC) has been set up to improve management within the whole of the ITU as well as coordination between the Bureaux and the General Secretariat and to relieve the Coordination Committee of some of its workload so that it can focus better on fundamental and strategic issues.

The scope and responsibilities of the SLMC have been determined by the Coordination Committee and include among others personnel and financial matters as well as the development and the use of the physical facilities and information resources available within the ITU secretariat.

The SLMC is comprised of several standing members from the various Bureaux and departments of the ITU and is chaired by the Deputy Secretary-General, Henry Chasia. The Staff Council has been invited to participate in its regular sessions. ■



FROM OFFICIAL SOURCES

REGIONAL AGREEMENT

CONCERNING THE PLANNING OF THE MARITIME RADIONAVIGATION SERVICE (RADIOBEACONS) IN THE EUROPEAN MARITIME AREA (GENEVA, 1985)

REGIONAL AGREEMENT

CONCERNING THE MF MARITIME MOBILE AND AERONAUTICAL RADIONAVIGATION SERVICES (REGION 1) (GENEVA, 1985)

The government of **Finland** has acceded to the above-mentioned Agreements.

CONSTITUTION AND CONVENTION OF THE ITU (GENEVA, 1992)

The Government of **Armenia** has acceded to the above-mentioned Constitution and Convention.

The instrument of accession was deposited with the General Secretariat of the Union on 29 September 1995.

NEW MEMBERS

Bulgarian Telecommunications Company Ltd., Sofia and **Koninklijke PTT Nederland NV (KPN), The Hague**, have been admitted to take part in the work of the Development Sector.

Multichoice Limited, Randburg, TCI/BR, Alexandria (Virginia) and **Teledesic Corporation, Washington, DC**, have been admitted to take part in the work of the Radiocommunication Sector.

NEW DENOMINATIONS

Fonetel Global Communications AB, Malmö which participates in the work of the Radiocommunication and Standardization Sectors, has changed its name. The new denomination is **Nordiska Tele8 AB**.

PTT Telecom Netherlands BV, The Hague which participates in the work of the Radiocommunication and Standardization Sectors, has changed its name. The new denomination is **Koninklijke PTT Nederland NV (KPN)**.

VACANCY NOTICE

One circular telegram which has been sent to all members and others of the Union announce the following vacancies:

- a post of **Head of the Telecom Finance Service, grade P.4**, to be filled in the General Secretariat (Finance Department), as soon as possible, for two years with possibility of extension (circular telegram No. A106 of 12 October 1995; vacancy notice No. 22-1995 ITU; final date for submission of applications: 12 December 1995).

Detailed applications with ITU personal history form should be submitted to the General Secretariat of the ITU, Place des Nations, CH-1211 Genève 20 (Switzerland), not later than the final date mentioned above.

PUBLICATIONS

The following letters indicate the languages in which documents are published:

F for French	R for Russian
E for English	C for Chinese
S for Spanish	A for Arabic

Prices are in Swiss francs (CHF).

A comprehensive list of all the publications of the Union will be supplied, free of charge, from the ITU, Sales and Marketing Service, Place des Nations, CH-1211 Genève 20 (Switzerland). Fax: +41 22 730 5194.

ITU Global Directory (10th edition, October 1995)

(92-61-05897-3)

Trilingual edition F, E, S (CHF 32)

Lexicon of telecommunication terms English/French/Arabic (1st edition, 1995)

(92-61-05839-6)

Trilingual edition F, E, A (CHF 59)

Telecommunication Development Sector

Asia Pacific telecommunication indicators (1995)
(92-61-05641-5)
Edition E (CHF 100)

Radiocommunication Sector

List of international monitoring stations (8th edition, September 1995)
(92-71-04026-0)
Trilingual edition F, E, S (CHF 74)

Handbook "Digital television signals coding and interfacing within studios" (Geneva, 1995)
(92-61-05571-0)
Separate editions F, E, S (CHF 60)

Handbook "National spectrum management" (Geneva, 1995)
(92-61-05881-7)
Separate editions F, E, S (CHF 33)

Handbook on radio astronomy (Geneva, 1995)
(92-61-05711-X)
Separate editions F, E, S (CHF 19)

Interconnection: regulatory issues — ITU regulatory colloquium No. 4: the changing role of government in an era of telecom deregulation (Geneva, 19–21 April 1995)
(92-61-05781-0)
Separate editions F, E, S (CHF 60)

ITU-R Reports, 1995

BO Series (BO.2006, BO.2007 and BO.2008) — Broadcasting-satellite service (sound and television)
(92-61-05801-9)
Separate editions in F, E, S (CHF 20)

BS Series (BS.2004) — Broadcasting service (sound)
(92-61-05811-6)
Separate editions in F, E, S (CHF 11)

BT Series (BT.2005) — Broadcasting service (television)
(92-61-05821-3)
Separate editions in F, E, S (CHF 10)

M Series — Part 1. Land mobile service excluding future public land mobile telecommunication systems (FPLMTS)
(92-61-05861-2)
Separate editions in F, E, S (CHF 20)

M Series — Part 3. Maritime mobile service and aeronautical mobile service
(92-61-05871-X)
Separate editions in F, E, S (CHF 15)

Telecommunication Standardization Sector

ITU-T Recommendation D.36 (03/95)
General accounting principles applicable to message handling services and associated applications
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation D.90 (03/95)
Charging, billing, international accounting and settlement in the maritime mobile service
Separate editions in F, E, S (CHF 15)

ITU-T Recommendation D.140 (03/95)
Accounting rate principles for international telephone services
Separate editions in F, E, S (CHF 8)

ITU-T Recommendation D.170 (03/95)
Monthly telephone and telex accounts
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation D.280 (03/95)
Principles for charging and billing, accounting and reimbursements for universal personal telecommunication
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation D.300 R (03/95)
Determination of accounting rate shares in telephone relations between countries in Europe and the Mediterranean Basin
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation D.301 R (03/95)
Determination of accounting rate shares and collection charges in telex relations between countries in Europe and the Mediterranean Basin
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation D.303 R (03/95)
Determination of accounting rate shares and collection charges applicable by countries in Europe and the Mediterranean Basin to the occasional provision of circuits for sound- and television-programme transmissions
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation D.307 R (03/95)
Remuneration of digital systems and channels used in telecommunication relations between the countries of Europe and the Mediterranean Basin
Separate editions in F, E, S (CHF 8)

ITU-T Recommendation E.174 (04/95)
Routing principles and guidance for universal personal telecommunications (UPT)
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ITU-T Recommendation E.527 (04/95)

Dimensioning at a circuit group with multi-slot bearer services and overflow traffic
Separate editions in F, E, S (CHF 8)

ITU-T Recommendation G.965 (03/95)

V-interfaces at the digital Local Exchange (LE) — V5.2 interface (based on 2048 kbit/s) for the support of Access Network (AN)
Separate editions in F, E, S (CHF 51)

ITU-T Recommendation P.341 (04/95)

Transmission characteristics of wideband handsfree telephones
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation Q.76 (02/95)

Service procedures for universal personal telecommunication — Functional modelling and information flows
Separate editions in F, E, S (CHF 29)

ITU-T Recommendation Q.788 (02/95)

User-network-interface to user-network-interface compatibility test specifications for ISDN, non-ISDN and undetermined accesses interworking over international ISUP
Separate editions in F, E, S (CHF 29)

ITU-T Recommendation Q.1400 Addendum 1 (02/95)

Architecture framework for the development of signalling and OAM protocols using OSI concepts
Separate editions in F, E, S (CHF 8)

ITU-T Recommendation Q.2140 (02/95)

B-ISDN ATM adaptation layer — Service specific coordination function for signalling at the network node interface (SSCF at NNI)
Separate editions in F, E, S (CHF 24)

ITU-T Recommendation Q.2761 (02/95)

Broadband Integrated Services Digital Network (B-ISDN) — Functional description of the B-ISDN user part (B-ISUP) of Signalling System No. 7
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation Q.2762 (02/95)

Broadband Integrated Services Digital Network (B-ISDN) — General functions of messages and signals of the B-ISDN user part (B-ISUP) of Signalling System No. 7
Separate editions in F, E, S (CHF 11)

ITU-T Recommendation Q.2951 (02/95)

Stage 3 description for number identification supplementary services using B-ISDN digital subscriber Signalling System No. 2 (DSS 2) — Basic call. Clause 1 — Direct-Dialling-In (DDI). Clause 2 — Multiple Subscriber Number (MSN). Clause 3 — Calling Line Identification Presentation (CLIP). Clause 4 — Calling Line Identification Restriction (CLIR). Clause 5 — Connected Line Identification Presentation (COLP). Clause 6 — Connected Line Identification Restriction (COLR). Clause 8 — Sub-addressing (SUB)
Separate editions in F, E, S (CHF 24)

ITU-T Recommendation T.505 (11/94)

Document application profile PM-26 for the interchange of enhanced structure, mixed content documents in processable and formatted forms
Separate editions in F, E, S (CHF 38)

ITU-T Recommendation X.246 (07/94)

Information technology — Open systems interconnection — Connection-oriented presentation protocol: protocol implementation conformance statement (PICS) proforma
Separate editions in F, E, S (CHF 15)

Supplement 11 to ITU-T Series P Recommendations (04/95)

Some effects of sidetone
Separate editions in F, E, S (CHF 8)

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The Assembly sets new priorities

"FIRSTLY, the basis for all activities in the Study Groups are Questions. They determine the distribution of effort which the membership, 'M' and 'm', is prepared to invest in relevant studies. We currently have about 400 Questions, of which certainly not all can enjoy the same urgency", said Bob Jones, Director of the Radiocommunication Bureau (BR), in his welcoming address to the Assembly. Those words sum up the agenda of the Assembly.

The first ever Radiocommunication Assembly held in 1993 "marked a turning point in the long tradition of ITU work in the field of radiocommunications", said Mr Karjalainen, Chairman of the Assembly. The reforms introduced by the Assembly have made significant strides in strengthening the role of ITU-R Study Groups, allowing them to make a remarkable contribution to the Strategic Plan approved in Kyoto last year.

The Assembly was meeting for the first time since the Kyoto Plenipotentiary Conference which proposed further reforms through a number of Resolutions. Pekka Tarjanne, Secretary-General of the ITU, stressed the following:

- Resolution 1 (Strategic Plan for the Union for 1995–1999);
- Resolution 14 (which recognizes many of the rights which Sector members enjoy in practice but must be included in the Rules of Procedure of the Sectors);
- Resolution 15 (on the Review Committee on the rights and obligations of all members of the Union);
- Resolution 16 (on the refinement of ITU-T and ITU-R);
- Resolution 18 (instructing the Director of the Radiocommunication Bureau to initiate a review of key issues concerning international satellite network coordination).

While the implementation of these Resolutions was broadly on track, Mr Tarjanne said that he anticipated a new wave of reforms at the next Plenipotentiary Conference which will take place in Minneapolis (United States) in 1998.

Composition of the Bureau of the Radiocommunication Assembly

Chairman: J. Karjalainen (Finland)

Vice-Chairmen: J. J. Da Silva, Jr. (Brazil), A. Pavliouk (Russia), S. Mbaye (Senegal) and H. Zhou (China)

Committee 1 — Steering Committee

Chairman: J. Karjalainen

Committee 2 — Budget control

Chairman: A. Kesse (Côte d'Ivoire)

Vice-Chairman: S. Kobayashi (Japan)

Committee 3 — Editorial Committee

Chairman: L. Bourgeat (France)

Vice-Chairmen: A. Pollard (United Kingdom) and P. García Barquero (Spain)

Committee 4 — Work programme and structural questions

Chairman: B. A. Gracie (Canada)

Vice-Chairman: E. Hauck (Switzerland)

Though not on the Assembly's agenda, there are questions that warrant attention, the Secretary-General continued. "Is RAG in its present form able to play the role assigned to it of providing strategic advice to the Director? ... Is it really necessary to hold assemblies and conferences every two years? ... Should we re-examine the idea of simply establishing a Technical Committee within the framework of the World Radiocommunication Conference to do the work now done by the Assembly?"

So, new challenges abound. "In order to maintain the so frequently quoted pre-eminent role of the ITU, one of the Sector's

important objectives must be the timely provision of precise criteria for frequency sharing and the coordination of new and existing radio systems in both space and terrestrial environments", Mr Jones said. He urged the Assembly to focus sharply on new ways and means of spurring the development and production of standards.

The Assembly revised four major Resolutions (ITU-R 1, 2, 5 and 14) that guide the work of the Sector. In particular, the revised version of ITU-R Resolution 5 provides new categories for identifying the priority and urgency of Questions. They are:

- C for "conference-oriented Questions associated with work related to specific preparations for, and decisions of, world and regional radiocommunication conferences...";
- S for "Questions which are intended to respond to matters referred to the Radiocommunication Assembly by the Plenipotentiary Conference, any other conference, the Council [or] the Radio Regulations Board".



From left to right: Messrs P. Tarjanne, R. Jones, J. Karjalainen and P. Capitaine (ITU)

A matter of priority

Sharing criteria between the fixed and mobile services in the frequency bands

between about 0.5 and 3 GHz (Question 133/9) is a priority for many developing countries. With the proliferation of personal communication services (PCS) which use parts of the frequency bands between 1.8 and 3 GHz, it is feared that conflict may arise with microwave link operators using the same frequency bands.

At the insistence of developing countries, this Question has now been moved from category S2 (meaning that the relevant Study Group is under no obligation to produce the necessary standards within two years) to category S1 (meaning that the relevant Study Group is under the obligation to produce the necessary standards within two years).

More coordination needed

The Telecommunication Standardization Bureau (TSB) stressed the need for good coordination through the Joint Steering Committee of ITU-R Study Groups 10 and 11 and ITU-T Study Groups 9 and 15. In particular, the matter of network and cable delivery of broadcasting and associated services, which is currently being studied by ITU-T Study Group 9, still required close coordination with ITU-R Study Group 11. This concern will be brought to the attention of the Joint Steering Committee.

Structural matters

Study Group I's scope broadened

This Study Group deals with spectrum management issues. The many efforts undertaken jointly by the ITU-R and the Telecommunication Development Bureau (BDT) which resulted in the development of the basic automated spectrum management systems (BASMS) were recognized. Efforts will be continued to fully meet the expectations of developing countries in overcoming their difficulties, not just in carrying out spectrum management at the national level but also in responding to requests for international coordination.

Why are these software tools so important?

Spectrum management tasks are becoming increasingly complex because of the growing demand for a more optimized use of the radio spectrum and the lack of experienced human resources.

Frequency managers now need efficient computerized support and tools to cope with the increasing demands.

Should the development of software be the unique prerogative of one Study Group or should the mandates of all Study Groups be broadened to allow them to "chip in"? The matter will be considered by a meeting of Study Group Chairmen and Vice-Chairmen after the World Radiocommunication Conference (WRC-95). In the meantime, the Assembly has expanded the scope and principles applicable to SG 1 and amended its terms of reference accordingly.

Study Group 2 dissolved

The September meeting of the Radiocommunication Advisory Group (RAG) considered the future of SG 2. One of its recommendations was to dissolve that Study Group and transfer its mandate to the revised Study Group 1. The Assembly has seriously looked into the matter and decided to cease the operation of SG 2, but to maintain the option of creating Task Groups under SG 1 to deal with urgent inter-service sharing and compatibility studies which would not normally be carried out by Joint Working Parties or *ad hoc* Rapporteur Groups. This arrangement will be reviewed at the next Radiocommunication Assembly in 1997.

Perhaps we ought to explain why SG 2 has been dissolved. This Study Group was set up to handle a limited number of urgent Questions on inter-service sharing and compatibility. It has done an excellent job through its specific-issue Task Groups. Its success lies in the many recommendations it has produced on complex issues such as compatibility

Study Group chairmanship and vice-chairmanship

Study Group 1

Chairman: R. Mayher (United States)
Vice-Chairmen: R. N. Agarwal (India), T. Jeacock (United Kingdom), N. Kisrawi (Syria) and A. Pavliouk (Russia)

Study Group 3

Chairman: L. W. Barclay (United Kingdom)
Vice-Chairmen: D. G. Cole (Australia) and F. Fedi (Italy)

Study Group 4

Chairman: E. Hauck (Switzerland)
Vice-Chairmen: J. M. P. Fortes (Brazil) and Y. Ito (Japan)

Study Group 7

Chairman: H. G. Kimball (United States)
Vice-Chairmen: G. De Jong (Netherlands), J. Saint-Etienne (France) and J. B. Whiteoak (Australia)

Study Group 8

Chairman: E. George (Germany)
Vice-Chairmen: A. A. Al-Darrab (Saudi Arabia), Y. Hirata (Japan) and O. Villanyi (Hungary)

Study Group 9

Chairman: M. Murotani (Japan)
Vice-Chairmen: R. D. Coles (Canada), G. F. Hurt (United States) and V. M. Minkin (Russia)

Study Group 10

Chairman: A. Magenta (Italy)
Vice-Chairmen: H. M. Joshi (India), H. Kussmann (Germany) and L. Olson (United States)

Study Group 11

Chairman: M. Krivocheev (Russia)
Vice-Chairmen: T. Nishizawa (Japan) and R. Zeitoun (Canada)

CCV

Chairman: J. Schwob (France)
Vice-Chairmen: P. García Barquero (Spain) and A. N. Heightman (United Kingdom)

Conference Preparatory Meeting (CPM)

Chairman: R. Taylor (United States)
Vice-Chairmen: T. Boe (Norway) and R. N. Agarwal (India)

between broadcast and aeronautical services in the 88 to 137 MHz band and frequency sharing criteria within the band 1 to 3 GHz.

The Assembly has transferred the additional work issues that were identified by SG 2 for urgent studies to Study Groups 8 and 9. Most of these items are related to the fixed service. Their study will facilitate frequency sharing in the band 1 to 3 GHz.

Study Groups 9 and 10 will jointly develop models for analysing the sharing between the HEO/BSS (highly elliptical orbits in the B-mode sending station) and the fixed service.

Should Study Group 8 be restructured?

This Study Group deals with issues related to all terrestrial and mobile satellite services. Most prominent is Task Group 8/1 which was established as Interim Working Party 8/13 back in 1985, and is responsible for studying technical, operational and service characteristics of the famous FPLMTS (future public land mobile telecommunication systems).

"Communication anytime, anywhere with anyone": this is what FPLMTS (or IMT 2000) promises to do for you when it will be brought into operation in the 2 GHz frequency band around the year 2000.

Studies covered include the first and second generation wireless access systems. There was much support for transforming TG 8/1 into a permanent Working Party so that it can better meet the challenges of the future.

Now, the hitch: TG 8/1's mandate runs up to 1997-1998. It would be rather premature to take a decision now. However, structural options will have to be considered at some future date.

New Recommendation takes centre stage

A draft new Recommendation entitled "System for multiplexing FM sound broadcasts with a sub-carrier data channel having

a relatively large transmission capacity for stationary and mobile reception", took centre stage.

Some countries, believe that adopting this Recommendation at this stage would be premature because there are indications of potential interference.

In addition, an evaluation is under way on the so-called high-speed data sub-carrier systems which either exist or are under development in a number of countries. As the results are expected by the end of the year or at the start of 1996, why not wait?

Generally, most of the Recommendations were adopted without much ado.

A special committee is created

There had been a suggestion at the start of the Assembly to create a new Regulatory Study Group. However, for some, creating such a group at this time would not really serve the interests of the Radiocommunication Sector. After all, regulatory and procedural issues are either discussed within world radiocommunication conferences or by the Working Party of the Conference Preparatory Meeting (WPCPM), established by the Radiocommunication Assembly of 1993 specifically for that purpose. Is the current structure not adequate to deal with all anticipated regulatory issues? Should not the WPCPM be given a chance to be evaluated?

The other side of the argument was that regulatory issues are so complex that there must be a more formal forum open to all members of the Sector. The current arrangement does not apparently facilitate the participation of developing countries.

In the end, the Assembly resolved:

- 1 to establish a special committee to address the review of regulatory procedural matters, the results of which may be used by administrations in their preparation for the 1997 World Radiocommunication Conference;
- 2 that the [above mentioned] committee shall incorporate and address the work

formerly undertaken in the Working Party to the Conference Preparatory Meeting on regulatory procedural matters;

- 3 that the results of these studies shall be contained in reports as contributions to the work of the Conference Preparatory Meeting in preparing its report to the 1997 World Radiocommunication Conference;
- 4 that the committee shall be open to all the membership of the ITU-R Sector.

The Assembly also approved a structure for this new Committee:

Chairman: A. Berrada (Morocco);

Vice-Chairmen: R. N Agarwal (India) and V. Rubio Carretón (Spain).

Developing countries called for a more equitable distribution of the posts of chairmen and vice-chairmen of the Sector's Study Groups, the Radiocommunication Advisory Group and the Conference Preparatory Meeting.

The Assembly has appointed the Study Group Chairmen and Vice-Chairmen (see box, page 17).

The Assembly has adopted a vast work programme for the Study Groups over the next two years.

Retiring Chairmen honoured

Several retiring Chairmen received awards of honour from Mr Tarjanne during the closing ceremony. ■

Opening of WRC-95

ON 23 October, the World Radiocommunication Conference 1995 was opened by the dean of the Conference, Nicolas Fèvre (France), in the presence of some 900 delegates. The structure (see box, page 22) and the working methods of the Conference were then defined. Mr S. S. Al-Basheer (Saudi Arabia), who was elected Chairman of the Conference, stated: "I believe that this is the first time in the annals of the ITU that a representative of an Arab country has been elected to chair a Conference of this magnitude... I am willing to confess that I am not speaking as one to whom this Conference is an open book... Our Conference is thus expected to add a new dimension to tomorrow's radiocommunication environment..."

Indeed, WRC-95 has to review the regulatory framework, namely, the Radio Regulations (RR), firstly to adapt it to the rapid pace of technological development, and

secondly to simplify it from the standpoint of procedures, terminology and wording, since, as was stated by Bob Jones, Director of the



A view of the rostrum



Nai Kei WONG Hongkong



As we approach the end of 1995, and indeed the end of the millennium, the desire for peace is uppermost in the hearts and minds of millions. Is there a key to peace? And what *is* peace? Is it "out there" or "in here", or both? If there is a key to peace, might it not lie in the realm of communication, in responding from the heart, via the mind, to the constant stream of

messages and stimuli we receive, both from within and without? In the field of telecommunications, tremendous efforts are made to eliminate harmful interference between radio stations, to ensure – on a technical level – that the message, whatever the medium, is as clear and undistorted as possible. Indeed telecommunications, with the ITU as a leading player, are helping to build bridges of immense significance to our world community, and we can be proud to be a part of this work. At the same time, however, we cannot fail to notice the conflicts, the hunger, the violence and the injustice which continue to plague our society, not to mention the very immediate tensions and stresses that can exist between colleagues, or members of the same family. And perhaps here we can learn from telecommunications. Perhaps the need to work on our own harmful interference, wherever its source may lie, is every bit as important as eliminating it from the airwaves. It might almost be said that the technology of communication is ahead of communication itself. So, as we continue to develop and share that technology, let us at the same time remain aware of the need to eliminate the harmful interference, both within and between us, that prevents us from experiencing true communication, which may well be the key to the peace we so dearly need. What better goal for 1996, and thereafter for the 21st century?

Happy New Year!

Pekka Tarjanne

Pekka TARJANNE

Chairman of the Conference

S. S. Al-Basheer (Saudi-Arabia)

Vice-Chairmen of the Conference

B. Fontes (United States), M. Johnson (United Kingdom),
V. Boulgak (Russia), G. Kithinji (Kenya) and A. Motai (Japan)

Committee 1 – Steering

Composed of the Chairman and Vice-Chairmen of the Conference and of the Chairmen and Vice-Chairmen of the various Committees and of the Working Group of the Plenary

Committee 2 – Credentials

Chairman: W. Tallah (Cameroon)
Vice-Chairman: A. Bocsan (Romania)

Committee 3 – Budget Control

Chairman: L. N. Chehab (Brazil)
Vice-Chairman: M. Ba (Mali)

Committee 4 – VGE Report on the Simplification of the Radio Regulations

Chairman: M. Goddard (United Kingdom)
Vice-Chairman: A. Berrada (Morocco)

Committee 5 – MSS and other matters

Chairman: G. F. Jenkinson (Australia)
Vice-Chairman: E. George (Germany)

Committee 6 – Editorial

Chairman: A.-M. Nebes (France)
Vice-Chairmen: I. E. Davey (United Kingdom) and V. Rubio Carretón (Spain)

Working Group of the Plenary

Chairman: R. Taylor (United States)
Vice-Chairman: R. N. Agarwal (India)

very heavy agenda including a number of particularly delicate questions.

To quote the words of Pekka Tarjanne, Secretary-General of the ITU: "The main challenge facing you is to facilitate the implementation of new-generation mobile personal communication systems and services, whether they operate up in space or here on the ground" and "interest in personal mobile communications goes well beyond technical questions and commercial opportunities".

Apart from the routine business, namely, the examination and approval of the report of the Director of the BR, the establishment of the agenda of the next WRC (i.e., in 1997) and the identification of subjects calling for greater emphasis on the part of the BR Study Groups, WRC-95 has to consider such questions as the final report of the Voluntary Group of Experts (VGE) and related proposals from administrations aimed at revising the RR, the use of the frequency bands allocated to the mobile-satellite service (MSS), the technical constraints associated with the frequency bands allocated below 3 GHz to the MSS (under which point mention should be made of the bringing forward of the date of entry into force of allocations to the MSS, MSS feeder links and power limits for earth stations in the 2 GHz band), and the review of the provisions contained in Appendices 30 and 30A to the RR and Resolution 712 of WARC-92.

The work of the Conference is based largely on the reports of the Conference Preparatory Meeting (CPM) and the VGE.

The agenda item which would appear to be the most important and at the same time the most delicate is the use of the frequency bands allocated to the MSS.

What is the MSS?

The MSS is a radio service between mobile earth stations and one or more space stations. Hitherto, stations have been installed on geostationary satellites placed in orbit 36 000 km above the equator; due to their speed of

Radiocommunication Bureau (BR): "... over many years, these voluminous books have evolved into a more and more complex set of regulations which are more difficult to understand and apply..."

This gives the measure of the task facing WRC-95. What is in fact involved?

What is at stake at WRC-95?

This Conference, with an announced participation of 1300 delegates, is likely to be one of the biggest held by ITU to date; it has a

rotation, they appear to be fixed in relation to Earth.

But we are now witnessing the advent of a whole new generation of satellites, relatively less expensive, which would be placed on a low-Earth orbit (LEO), middle-Earth orbit (MEO) or highly-elliptical orbit (HEO). These satellites would be non-geostationary and would therefore pass over users for a limited period. By using these satellites interconnected and at low altitudes, we can achieve a global coverage of the Earth with technical characteristics which will enable, for example, a mobile telephone to operate throughout the world at all times. The purpose is to provide a "seamless" worldwide communication network which will be constantly available, which is in keeping with the famous global information infrastructure (GII).

The MSS therefore offers vast economic potential, and already nearly 250 MSS systems have been notified. This economic aspect was emphasized by Mr Jones, who stated: "The international regulatory framework will

affect product strategies, will have an impact on market opportunities, revenue streams and the range of services available to users."

Where does the difficulty lie?

The difficulty resides in the lack of space available in a frequency spectrum which is already fairly congested, and also in the technical constraints designed to protect the other services sharing the bands already allocated to the MSS.

This is certainly the most intractable of the problems facing WRC-95.

However, it is to be hoped that the outcome of the Conference will meet expectations. Summing up, Mr Jones said: "Agreeing the solutions may not be so easy but if (and I underline if) there is the political will among the Members to find solutions, I'm confident that improvements will be made in this very important aspect of the ITU's work."

We shall be publishing a complete report on the results of the Conference in our January 1996 number. ■

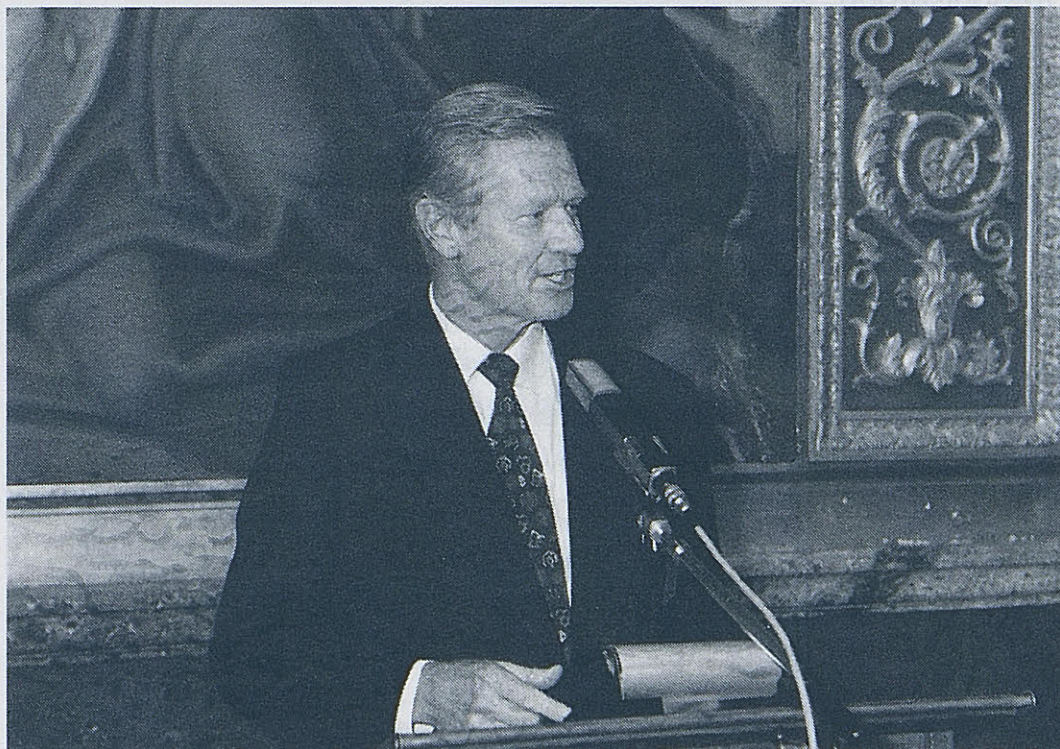
Linked by waves

One hundred years of radiocommunications in Munich

THE Italian Guglielmo Marconi and the Russian Alexander Popov discovered, independently, the possibility of using radiated electromagnetic waves to transmit messages back in 1895 and 1896, respectively. For more than 60 years, *Rohde & Schwarz* has taken an active part in shaping radiocommunications.

What better occasion than this memorable jubilee, the hundred years of radiocommunications, to look back proudly on past achievements. The company did just that last October, when it organized a special event for some 200 guests from over 100 countries, at its headquarters in Munich.

The three-day celebrations did not take place without the descendants of Marconi and Popov. Captain Vittorio E. Marconi



Friedrich Schwarz

Carbone, a cousin of the inventor, and Nadejda Mishkini, a descendant of Popov, were very special guests. Their handshake and emotional embrace almost symbolized the ushering in of a second century of radiocommunications.

ITU's delegation was led by Theodor Irmer, Director of the Telecommunication Standardization Bureau, Richard Kirby, former Director of the ex-CCIR, and Les Barclay, Chairman of ITU-R Study Group 3. Among the other guests were representatives from government, telecommunication administrations and industry.



A folkloric group

The guests were greeted by Otto Wiescheu, the Bavarian State Minister of Economics, Transportation and Technology. "We are in continual contact with industry in order to be able to recognize change in time, uncover weak spots, determine whether there is need for action by State authorities, and support the legitimate interests of industry", he said. Friedrich Schwarz, President and Chief Executive Officer of Rohde & Schwarz, praised the Bavarian government for its bold efforts to meet challenges, allowing it to remain at the forefront of technological change.

What is in store for the second century of radio? Here are some views from keynote speakers at the conference organized by the

company on the future of radiocommunications:

"From 1998, competition will be the rule and monopoly the exception and I am proud of this new approach. Increasing competition and deregulation should help clear the way" (Gerhard Pfeffermann, State Secretary of the German Ministry of Posts and Telecommunications).

"We should not think of wireless for mobile applications anymore, but for flexible applications" (Hans Wagner, President and Chief Operating Officer of Rohde & Schwarz).

"The technology we have now is so powerful that if somebody comes along and says I want to do something, we can do it. There is no problem. But we still have to face the limitations of the spectrum" (Les Barclay).

"Boundaries between wire and wireless are crumbling. You can no longer draw a clear line and say this is radio and that is not radio. High-definition television (HDTV) will almost exclusively be distributed by cable. Here is something regarded to be broadcasting which will be carried over broadband cable networks. But it will not be the only service to be routed over the cable" (Theodor Irmer)

"The growth of radio in the early days was great, but the horizons now are far greater. Engineers have to consider the many electronic systems within a piece of equipment, and this is just a microcosm of the world of electronics today" (Richard Kirby).

Rohde & Schwarz was founded in 1933 and has since been a pioneer in the field of electromagnetic compatibility, producing state-of-the-art test receivers and spectrum analysers.

Today, the company supplies turnkey television and FM sound broadcasting networks, head stations for cable television networks, monitoring and analyser systems for television and sound broadcasting networks as well as systems for audio and video applications. It participates in the European research programme for HDTV and is involved in the implementation of the digital audio broadcast system (DAB) and the digital video broadcast system (DVB). ■

Moussa Malek Asghar



WE were immensely saddened to learn of the death, on 9 October 1995, at the age of 62, of Moussa Malek Asghar, former Senior Counsellor and Head of Department A in the Tele-

communication Standardization Bureau (TSB).

After completing his engineering studies at the *Ecole nationale supérieure des télécommunications* in Paris, Mr Malek Asghar joined the ITU in 1960, as a staff member of the former IFRB. In 1962 he transferred over to the Secretariat of the CCITT; from then, until his retirement in 1994, he held a number of positions in the CCITT Secretariat (later the TSB) and exercised a decisive influence on its work. Among his numerous activities, we might single out two for particular mention, namely, his work in the Plan Committees (World and Regional Committees) and his leading role in preparing and organizing the CCITT Plenary Assemblies and the first World Telecommunication Standardization Conference (WTSC), which was held in Helsinki in March 1993.

His career of more than 30 years covered radical changes in worldwide standardization. The "digital revolution" and the developments which have taken place in the standardization environment as a result of the liberalization, privatization and globalization of telecommunications required constant adaptation and change in the working processes employed in the CCITT, subsequently the Standardization Sector. New tasks, for example, the transition from paper-based document handling to electronic document handling had to be tackled; a standard database had to be established, which now as ITUDOC provides

prompt access to more than 2000 standards; and, last but not least, the structure and working methods of the CCITT Secretariat, and subsequently the TSB, had consistently to be modified to match these changes.

Mr Malek Asghar served as the essential driving force in all these frequently difficult and complex undertakings. His profound knowledge of telecommunications, his outstanding gift for organization, coupled with his thoroughness and his unflagging energy, were the tools which enabled him to cope successfully with these problems. If the ITU Standardization Sector continues to demonstrate its pre-eminence in worldwide standardization, it is in large measure due to his efforts. A tireless worker, he demanded the same level of commitment from all members of his staff. In discussion, he defended his own well-founded opinions with firmness and energy; when acrimony crept in, one still invariably felt that he was defending the interests of "his" organization, neglecting his own. When, occasionally, a decision went against him, he always accepted it loyally and carried it out uncomplainingly. He was popular with all his colleagues on the ITU staff as well as with all participants in meetings and conferences; he was universally respected for his achievements and his abilities.

It was unfortunately not given to him to enjoy his well-earned retirement for very long, after leaving the office at the end of May 1994; a cruel disease and fate decided otherwise.

His family's grief is shared by his colleagues in the TSB, by many other staff members of the ITU, and also by a large number of delegates, linked to him over many years by bonds of cooperation and friendship. Carrying on with our work in the TSB today, we are constantly reminded of his life's achievement which is his legacy to us — our "MMA", as we always called him, will continue to live in our memories. ■

A market-driven, leading edge focus

THE most recent meeting (Geneva, September 1995) of Study Group 12 (End-to-end transmission performance of networks and terminals) gave clear indication to the international community that SG 12 has made a successful transition from a past that was oriented towards telephony in a monopolistic environment, to activities that are much more diverse from a technical point of view and market-place driven. In addition to demonstrating this success in evolving its work plan, SG 12 has also clearly shown that it is applying important resources efficiently in its new focus. This brief article gives testimony to these claims by citing a few achievements, with the distinct purpose of communicating the "new" culture of this rapidly evolving Study Group.

One example of an area where today's technology demands new recommendations to ensure market-place acceptance is that of in-service, non-intrusive measurement devices for assessing the speech levels, noise levels, and echo performance on national and international connections. In this regard, under the guidance of Mr P. Sheppard (United Kingdom), new ITU-T Recommendation P.561 was completed in only two meeting cycles. This Recommendation will enable service providers to measure the speech quality parameters in the way that users of services perceive them. Future activities in this area of in-service measurements will include studies to better relate these measurements to existing transmission planning tools. In time, planning tools used by network operators may well evolve to be totally based on in-service, possibly application-specific, measurements.

Another example that is quite relevant to the market-place is the revision of ITU-T Recommendation G.113 (Transmission impairments) that SG 12 just approved. Central to

the thrust of this revised Recommendation is a new methodology for dealing with the transmission impairments that accompany the introduction of digital signal processing technology into new telecommunications systems and services.

For example, if a GSM user in Europe calls via an undersea cable (with ITU-T Recommendation G.726 speech compression being done on it) to leave a voice message in the United States on an answering system that used 16 kbit/s coding (ITU-T Recommendation G.728), thanks to revised ITU-T Recommendation G.113 we can now predict, with reasonable accuracy, the resulting speech quality. Prior to this key revision, the interactions between the low-rate coding systems could not have been reasonably assessed without the expense of a subjective test. This revision of ITU-T Recommendation G.113 was also achieved in well under two years, beginning to end, thanks to the excellent job done by Mr J. Zebarth (Canada), Rapporteur for Question 25/12.

In closing, I assume that I have made my point about the efficiency and market relevance being achieved by SG 12. So permit me to end with another perspective: much of the success I have described is in fact the result of reuse of work done by regional standards bodies. The new ITU-T Recommendation P.561 got its start from a regional standard, and although the final text was substantially modified (and advanced) to capture the needs of the broader global community, work did not really take off until a draft document was put on the table. The same is true for revised ITU-T Recommendation G.113, whose new planning methodologies came straight out of a very substantial European Telecommunications Standards Institute (ETSI) report championed by Mr N. Johannesson

(Sweden). Without the willingness of delegates to SG 12 to strive for a global standard, these initial regional documents would not have even been further developed — and you would not be reading this article about

the good results achieved by SG 12. It is a simple, but so very powerful, experience.

Charles Dvorak (United States)
Chairman WP 4/12

INFODEVELOPMENT

The following missions have recently been undertaken by ITU experts

- **Bangladesh (Dhaka)**
Doherty J. (Ireland)
Consultant in cellular communications
(9.9.95–23.9.95)
- **Brazil (Campinas)**
Souza S. E. (Canada)
Consultant in CDMA techniques
(3.9.95–9.9.95)
Thrush E. J. (United Kingdom)
Consultant in research staff orientation
(9.9.95–30.9.95)
Popovic B. (Yugoslavia)
Consultant in printed antennas (antenna theory)
(16.9.95–24.9.95)
- **Chad (Ndjamena)**
Terkemani A. (Morocco)
Senior expert in external installation maintenance
(4.9.95–9.11.95)
- **Congo (Brazzaville)**
Zaragoza M. (Spain)
Consultant in management information systems
(21.9.95–20.10.95)
- **Dominican Republic (Santo Domingo)**
Pinedo F. (Argentina)
Consultant in telecommunication regulations
(27.9.95–26.10.95)
- **Egypt (Cairo)**
Tebourbi H. (Tunisia)
Consultant in telecommunication support for environmental protection
(23.9.95–14.10.95)
- **Eritrea (Asmara)**
Vallese F. (Italy)
Consultant in telecommunications
(2.9.95–24.9.95)
- **Gambia (Banjul)**
Mahendra V. K. (India)
Senior training expert in planning, construction and maintenance of local networks
(11.9.95–5.11.95)
- **Haiti (Port au Prince)**
Adame L. (Mexico)
Expert in cellular communications
(23.9.95–8.10.95)
- **Honduras (Tegucigalpa)**
Rofe C. (France)
Consultant in telephone tariffs
(10.9.95–14.10.95)
- **India (Bangalore)**
Pillinger L. A. (United Kingdom)
Consultant in PCB standards and materials
(15.9.95–30.9.95)
Snow A. (United Kingdom)
Consultant in PCB standards and materials
(15.9.95–30.9.95)
- **India (New Delhi)**
Nielsen S. (Denmark)
Consultant in computer application in broadcasting and training
(17.9.95–28.10.95)
- **Indonesia (Bandung)**
Valkovic M. (Croatia)
Senior expert (technical)
(9.9.95–8.10.95)
McDermott P. (Ireland)
Senior expert in technology based training
(19.9.95–7.10.95)
- **Lao P.D.R. (Vientiane)**
Moutel L. (France)
Senior expert for investment in telecommunications
(16.9.95–22.10.95)

- **Mali (Bamako)**

Bolduc G. (Canada)
Senior expert in frequency management and monitoring of emissions
(11.9.95–11.11.95)

- **Mongolia (Ulan Bator)**

Pavliouk A. (Russia)
Consultant in radio frequency regulatory services
(4.9.95–6.10.95)

- **Morocco (Rabat)**

Van Vucht C. (Netherlands)
Planning consultant
(18.9.95–10.10.95)

- **Niger (Niamey)**

Cisse M. N. (Senegal)
Senior training expert
(10.9.95–11.11.95)

- **Slovakia (Bratislava)**

Fenske S. (Germany)
Senior expert in local loop techniques
(24.9.95–30.9.95)

- **Thailand (Bangkok)**

Mattiske D. (Australia)
Senior expert in sectoral survey
(24.9.95–23.11.95)

- **Tunisia (Tunis)**

Bavay F. (France)
Consultant in strategic development planning
(24.9.95–30.9.95)
Denouvilliez J. P. (Canada)
Consultant in invoicing/accounting for telecommunication products and revenue
(30.9.95–1.11.95)

- **Zimbabwe (Harare)**

Moshiro S. (Tanzania)
Senior expert in telecommunications policy and regulatory framework
(19.9.95–23.12.95)
Sanou B. (Burkina Faso)
Senior telecommunications expert
(28.9.95–9.10.95)

PERSPECTIVES

The spectrum auction debate with Mark Bykowsky and Jan Skora

■ *In addition to the United States, a number of countries have recently used auctions to assign spectrum licences. What has sparked this apparent trend?*

Bykowsky: Two factors have contributed to this trend in the United States. First, weaknesses in the previously used assignment mechanisms — comparative hearings and lotteries — became more apparent in recent years.

A “comparative hearing” is a legal proceeding before an administrative law judge who is responsible for assigning the radio licence in a manner consistent with the public interest.

Because the judge often adjudicated between many different competing applicants, and because his decision was contestable, a comparative hearing often took years to complete.

In the case of a lottery, the low cost of entering it encouraged a large number of applicants, thereby increasing the likelihood that the licence would not be assigned to the party that valued it most.

While many lottery winners sold their licences in an after-assignment transaction, thereby correcting the initial misassignment, the costs associated with this transaction

represent a waste of society's scarce resources.

Second, auction proponents believe that the government, rather than the winner of the comparative hearing or the lottery, should capture a portion of the economic value users obtain from using this public resource.

Skora: There are a number of reasons why auctions seem to have become attractive. Economists believe that reliance on market forces will produce the most economically efficient "allocation" of the spectrum resource. Politicians and public finance officials believe that auctions will generate greater revenues for governments than conventional licence fees will. Both of these points of view have influenced the trend to auctions generally. Spectrum management authorities seek alternative methods of determining spectrum access because of increasing dissatisfaction with existing methods.

■ **Some measure a spectrum auction's success by the amount of revenue generated. Is this an appropriate metric?**

Skora: In a worldwide environment of increasing demands for publicly-funded services and shrinking public revenues, it is inevitable that the up-front one-time revenues generated by an auction for spectrum licences will be the most visible mark of a particular auction. However, revenues are probably not the most appropriate single measure of an auction's success.

An auction for spectrum access should be judged by other criteria as well. Was the process fair? Transparent? Expeditious? Open? Simple? Well-accepted by participants? Did those that value the spectrum the most win the auction?

Bykowsky: No, it is not an appropriate metric. Measuring success solely in terms of revenue can often have undesirable effects. For instance, one simple method of increasing auction revenue is to restrict the number of

licences up for auction. This will reduce service competition and should, therefore, lead to higher service prices and higher bids. However, higher service prices decrease society's economic welfare, a decline that is equivalent to extracting money directly from the customers' pockets. This decline will, almost always, exceed the additional revenue earned by restricting the number of licences up for auction.

The promotion of "allocative efficiency" is the best measure of success. Allocative efficiency is maximized when licences are assigned to those entities able to make the best use of them. Interestingly, the goal of allocative efficiency is often consistent with substantial revenue generation. The extent of this consistency depends upon the bidding environment (for example, bidder licence preferences, bidding competition) and the rules of the auction.

■ **Should public enterprises compete with the private sector in a spectrum auction?**

Skora: No. "Public services" such as air traffic control, police, fire protection and military uses should not be required to obtain access to the radio-frequency spectrum by auction.

However, where services are offered to the general public in return for compensation, market-place forces in a competitive environment should regulate costs and prices.

Bykowsky: This is a difficult question. The social value of a spectrum licence is approximately equal to the revenue the most efficient firm would earn from its use. In order for an auction to assign a licence in a manner that maximizes society's economic welfare, the bids submitted must be positively correlated with the value society places on the bidders' use of the licence.

Unfortunately, it is difficult to measure the value society places on many of the public services public enterprises provide because they typically do not receive a direct payment from the consumers of their services. Theory

Politicians and public finance officials believe that auctions will generate greater revenues for governments than conventional licence fees will

The difficult problem involves identifying the spectrum that should not be auctioned because it is used to provide important public services

suggests that the bids public service providers would submit in an auction may be "too low" relative to those that would ensure the efficient allocation of licences. Indeed, an auction may be "biased" against public service providers. Therefore, society's economic welfare may be enhanced by preventing the private sector from competing with public enterprises for spectrum used to provide important public services.

The difficult problem involves identifying the spectrum that should not be auctioned because it is used to provide these important public services.

■ *Mr Skora, what expectations are created by auctions?*

Skora: Bidders at an auction for spectrum licences expect clear winners with access and rights to the radio-frequency spectrum in proportion to fees paid at the auction.

Public finance officials expect large revenues from competitive bidding for access to public resources.

Economists expect that a fundamental economic theory is satisfied: namely, that those who value the resource the most, will pay the most for it.

■ *Is there such a thing as a "bad" auction?*

Bykowsky: Yes. To an economist, a "bad" auction is any auction that fails to assign the item to the bidder that values it most. An auction's ability to satisfy this objective depends upon the bidding environment. If the auction involves multiple licences, if bidders wish to acquire more than one licence, if their preferences for licences partially overlap, and if the value bidders place on a licence depends upon the other licences they obtain (i.e., interdependency in licence values), then some auction forms may lead to a strikingly inefficient assignment of licences. The likelihood of this outcome depends upon the degree to which the above bidding conditions apply and the chosen auction form.

Skora: Auctions are not immune nor are they more or less vulnerable to bad results or process any more than any other regulatory instrument. A bad auction is one which produced results which were not fair, transparent, expeditious, open and simple.

■ *The United States personal communications services (PCS) auctions appear to be very successful. Is there room to improve the auction form used to assign PCS licences?*

Bykowsky: Yes. A substantial amount of serious thinking was devoted to designing the United States PCS auction. While the Federal Communications Commission (FCC) did a commendable job digesting this thinking and selected a good auction form, there are a number of areas where the auction rules could be improved.

For instance, auction revenue would have been increased if the rules prevented large bidders from forming bidding coalitions. These coalitions, combined with other auction rules, made some large bidders ineligible to bid on specific licences.

The reduction in bidding activity on these licences reduced auction revenue — possibly substantially. It is not clear whether these coalitions had an effect on who won licences.

Furthermore, auction revenue would have been considerably higher and possibly have led to a more efficient assignment if bidders were allowed to offer bids on packages of licences, as opposed to having to place separate bids on individual licences comprising a desired package. If bidders have interdependent values for licences, this additional bidding flexibility would reduce the risk bidders face and, therefore, would increase their willingness to bid aggressively and may even alter the final outcome.

Skora: To lessen the up-front cost to radio-communication service providers, it should be possible to spread the auction fee over the term of the licence. This would diminish the financial burden on less well-financed entities,

but may result in a loss of revenue to governments should winning bidders declare bankruptcy at some point.

■ ***Do auctions favour one type of bidder over another?***

Skora: Some argue that enterprises with access to substantial funding — “deep pockets” — would be favoured at an auction. This is not necessarily so because it ignores the qualification of bidders and other rules which govern the conduct of the auction. These rules could be structured to recognize bidders who do not have money to bid “up-front” but who will earn the fees as their goods and services are bought in the marketplace.

Bykowsky: It depends what is meant by “favour”. A “fair” auction is one in which winners are determined strictly by the valuations bidders place on the auctioned items and not by the rules of the auction. In the United States PCS auction, one major challenge was to design a fair auction. The auction form chosen goes far, but may not completely satisfy this objective in all instances. For instance, it was highly unlikely, in the recent PCS auction, that a single bidder would be able to assemble a nationwide collection of licences, even if that bidder placed the highest value on such a set of licences.

Those that prefer a non-price-based assignment mechanism often believe that an auction favours “deep-pocketed” bidders. To the extent that these bidders also place the highest value on the auctioned licences, economic efficiency is enhanced if they win the licences.

More importantly, the “deep-pocketed” bidder argument is a capital market imperfection argument in disguise. It is based on the notion that it is more costly for small firms to raise the necessary capital to win a licence than a large firm. While it is generally agreed that capital markets are not perfect, the

problem affects the efficiency of all spectrum licence assignment mechanisms.

Licences assigned by a comparative hearing or a lottery are eventually sold to those that are able to use it more efficiently. Therefore, the issue is not whether one should allow “deep pocketed” firms to acquire a licence, but whether the government should receive the revenue associated with the initial sale of the licence.

■ ***Can auctions function successfully within a wide range of general social and telecommunications goals?***

Skora: Economists believe that a wide range of non-economic goals can be achieved by good auction design. A competitive marketplace in the provision of radiocommunication services as a general goal, for example, can be ensured by imposing aggregation limits on the number of licences which can be obtained by any one firm. Of course this is equally true for any method of assigning radio frequencies to individual users. By way of another example, service to rural and underserved areas can be ensured by making this a condition of the licence to be awarded.

However, there are concerns that large prices (bids) obtained at auction can be sufficiently distracting so as to blur all goals other than revenue generation.

Bykowsky: Auctions can be used as a “public policy” tool. For instance, by imposing a rule that prevents incumbent service providers from bidding on a spectrum licence, an auction can be used to promote competition. It can also be used to redress previous social and economic inequities.

It is possible to assist those harmed by setting aside licences for which only they can bid. Or, the auction rules can provide them a bidding credit under which the item will be assigned to the highest bidder from the designated group unless the highest bid from the non-designated group is some specified percentage higher than the highest

In the United States PCS auction, one major challenge was to design a fair auction

designated group bid. The United States PCS auction employed both of these public policy-oriented bidding tools.

■ **How are broadcasters whose business is popularly associated with the spectrum reacting to spectrum auctions?**

Bykowsky: Broadcasters in the United States are understandably concerned about the possibility of paying for the right to use the spectrum. They believe that they are being singled-out as a source of revenue by the Federal Government. Moreover, in a world in which broadcast spectrum permits its user to provide more than broadcast television service, broadcasters are concerned that they may not be the winner in the auction.

Skora: Broadcasters have not paid radio licence fees for access to the radio-frequency spectrum in Canada as have other spectrum users such as telecommunications carriers. In view of the difficult times faced by many broadcasters, it is difficult to see how they could be happy about auctions if auctions represented increased cost for them.

■ **Is there in fact any wisdom to licensing what is after all "thin air"?**

Skora: Inasmuch as access to the radio-frequency spectrum is a key factor in telecom-

munications, and telecommunications is an important enabler of economic growth, yes, the "thin air" should be licensed.

Access to the radio-frequency spectrum should be licensed to ensure that as many users and as many uses as possible have an interference-free opportunity to contribute to economic well-being. Licence fees provide some return to governments and the public which owns and manages the spectrum resource.

Bykowsky: This question raises important ethical issues about the Earth's physical resources and how anyone can "own" them when they were initially the common heritage of all humanity.

A good example involves geostationary orbits. As the orbits are increasingly being used by the developed world, there are fewer left for the rest of the world's people. Economic thinking can provide some important insights into this discussion. The creation of property rights creates incentives that typically leads to the asset's more efficient use. The possibility exists that the additional value created by this more efficient use could be distributed in such a way that every country is made better off. The difficult practical issue involves finding a distribution of value that everyone can agree on. ■

Mark Bykowsky is Senior Economist for the National Telecommunications and Information Administration (NTIA). He holds a Doctorate in Economics from the University of Colorado. He joined NTIA in 1986.

Jan Skora is Acting Director-General of the Radiocommunication and Broadcasting Regulatory Branch, Spectrum Management Programme with the Department of Industry of Canada. He holds a Bachelor of Electrical Engineering from Carleton University in Ottawa and has worked in the field of radiocommunications since 1974.

TELECOM 95 news round up

A new name in go-anywhere communications

The Inmarsat-P Affiliate Company announced that it would operate under the name of *ICO Global Communications*. The company also unveiled a new logo incorporating the ICO name. ICO was constituted in January 1995, with investors from 41 countries and *Inmarsat*, to provide global hand-held telephone services using an intermediate circular orbit satellite system. It will begin full operations in the year 2000. — *ICO*.

KDD: "Bringing people together"

KDD exhibited various state-of-the-art technologies and services instrumental to its global multimedia vision of "sending whatever media to anyone, to and from anywhere in the world, at any time", a vision that is based on *KDD*'s concept of "Bringing people together".

The technologies included wavelength multiplex transmission and soliton transmission that enable large-capacity, high-speed and long-distance transmission, a multimedia teleconference system that, by using ATM-compatible video codec, allows high-definition television-conference among three or more countries, and a digital video search system that allows the user to search, play back, and edit video quickly. — *KDD*.

NTT: "Global partnerships that get people talking"

Nippon Telegraph and Telephone Corporation's theme reflects its desire as one of the leading enterprises in the multimedia age to raise its presence in the world market to expand its tie-ups and business ventures with overseas corporations. *NTT* demonstrated a number of personal, mobile and innovative multimedia communication systems and technologies.

The company showcased its new personal handy-phone system which supports 32 kbit/s digital wireless communications including multimedia capabilities, and an international cooperative network management system, *TINA-C*.

At the specially prepared "Silk road live" show, an approximate 2.8 m super-high-resolution large-screen display system and a video-on-demand system were used to dramatize how recent advances in information and communications will affect peoples daily lives in the multimedia era. — *NTT*.

Inmarsat leads wireless messaging initiative

Inmarsat has announced support from the world's leading wireless networks for its wireless messaging technology which gives people on the move anywhere in the world access to the *Microsoft Exchange*.

Inmarsat unveiled the technology which supports communications between a mobile user or mobile application and a local area network mail server and *Microsoft* announced their endorsement.

"This initiative among industry leaders [...] is important because it will allow mobile exchange server users to reliably send and receive messages, as well as manage their inboxes, across virtually any major wireless network", said Rob Shurtleff, General Manager of the work group solutions product unit at *Microsoft*. — *Inmarsat*.

A global venture for the future

Three of the world's leading telecommunications companies — *Deutsche Telekom*, *France Télécom* and *Sprint* — announced that they have combined forces to establish a worldwide joint venture that will simplify global communications. Offering a comprehensive array of advanced voice and data

services, this alliance will provide a seamless, customer-focused service for businesses, telecommunication carriers and consumers. The joint venture requires regulatory approval. — *Deutsche Telekom/France Télécom/Sprint.*

Harris unveils new products for rural market

As the world moves closer to becoming a global village, remote regions are increasingly reliant upon a solid telecommunications infrastructure as a key requirement for economic growth.

Harris Corporation unveiled its *TerraLink XR*, which combines cellular and high frequency technologies to provide wireless communications coverage to remote locations such as rural communities and to disaster-hit areas and emergency-response operations. Also showcased was the Harris *MegaStar* SDH microwave radios that provide voice, data and video transport throughout the 4 to 11 GHz frequency bands and conform to SDH and SONET standards. — *Harris.*

Hitachi: "The seamless universe"

Hitachi exhibited asynchronous transfer mode (ATM) switches for public and corporate network systems. Under the theme *The seamless universe*, the company presented the image of a world provided with a global information communication technology that can use high-speed public and corporate communication networks, and multimedia applications utilizing such networks.

With the growing convergence between communications and cable television, digital satellite broadcasting and interactive multimedia services, the ATM switch is being used as a high-speed interface. It is the elimination of borders in those fields that Hitachi has called *The seamless universe*.

Other exhibits were: a high-definition television-based teleconferencing system using ATM nodes and synchronous optical network systems, a parallel-computing-based cable television video-on-demand system, an "elec-

tronic art museum" in which the paintings are shown on ultrahigh-resolution display screens, and a sign-language translation telephone system. — *Hitachi.*

Oracle and ARDIS form alliance for mobile computing

Oracle Corporation announced a marketing and development alliance with ARDIS wireless network to expand mobile computing solutions available for corporate computing environments.

Using the ARDIS network, applications developed with Oracle Mobile Agents will provide mobile workers transparent access to corporate data sources by allowing users to wirelessly update and query databases, access applications, and send or receive electronic mail. — *Oracle.*

BT and MCI introduce next generation of global services

BT and MCI have announced that Concert, their joint venture global services company, is introducing the next generation of global voice and data features to augment its current portfolio of communications services.

The new services and enhancements greatly expand the Concert global services that BT, MCI and their partners can provide for business customers around the world. These include the world's first virtual private network (VPN) based global audioconferencing service, a new VPN calling card, a suite of services targeting electronic messaging applications and expanded global data services. — *BT.*

PMC-Sierra introduces first public network compliant ATM device

PMC-Sierra, Inc. unveiled the *PM5347 S/UNI-155-PLUS*, a new addition to the *S/UNI* family of ATM physical layer devices. The *S/UNI-155-PLUS* is the industry's first ATM physical layer solution to specifically address the stringent network node interface (NNI) requirements. The NNI specifies a superset of

the requirements for the user network interface (UNI) and is used primarily as an interface between nodes within public ATM networks.

The device will be fully tested in PMC-Sierra's broadband conformance laboratory for adherence to ATM Forum, ITU and Bell-core standards. Currently available alternatives either do not comply with NNI specifications or require extensive external logic to do so. — *PMC-Sierra*.

Atlas Telecom introduces voice mail platform

Atlas Telecom has introduced a powerful and flexible voice processing system designed for use by enhanced services providers around the world. The PCS Messenger provides industry-leading voice mail capabilities and allows customers to add software modules to extend the platform's capabilities.

The PCS Messenger is designed with a distributed architecture using client-server technology, providing redundancy, reliability and flexibility. In a typical deployment, such as for a national voice mail service, a PCS Messenger system consists of multiple nodes connected over a high speed backbone network. The system is designed for integration in advanced-technology networks such as IN, GSM and ISDN, as well as cellular, cable, PSTN or PBX networks. — *Atlas Telecom*.

New base stations for cellular mobile telephony

Ericsson introduced prototypes of two new base stations that will help operators of cellular mobile telephone and PCS meet future subscriber growth. "Micro" and "pico" as the two new base stations are called, provide enhanced flexibility and increased network capacity.

They are designed to allow the full implementation of hierarchical cell structures and complete the company's family of digital RBS base stations. The *Micro RBS* is possibly the smallest outdoor base station available for

micro and pico cell GSM 900, DCS 1800 and PCS 1900 networks.

Ericsson also unveiled its new digital radio access system, the *DRA 1900*, which makes very efficient use of radio spectrum to link subscribers into the fixed telephone network. Intended for use as an alternative or a complement to wired access, the new DECT-based RLL (radio in the local loop) system is designed for use in urban, suburban and rural networks, to bring telephony and data services to residential and small business subscribers. The DECT standard supports basic rate ISDN services. — *Ericsson*.

INTELSAT to carry first pan-Russian VSAT network

INTELSAT and *Moscow Teleport-TP* have announced that *Teleport* will launch the first pan-Russian multi-purpose VSAT network service starting in May 1996. For the first time, customers in all parts of Russia will have access to voice, fax, data, and videoconferencing transmission services over a switched digital satellite network.

Teleport-TP, an authorized direct-access customer of *INTELSAT*, has leased 36 MHz of capacity on the global beam of the *Intelsat-704* spacecraft at the 66° E orbital location. The network hub will be a new Standard A earth station installed in Moscow, with about 125 VSATs located at various sites in the country. — *INTELSAT*.

Nokia and Cisco to form strategic alliance

Nokia (Finland) and *Cisco Systems* (United States) have announced that they will form a strategic alliance to develop jointly, ATM-based network products to provide corporate service network solutions.

Deregulation is greatly increasing the number of public telecommunications operators and redefining their ways to compete. Operators in deregulated markets are focusing more and more on end-user needs, which requires vendors to provide service-oriented

system solutions. The first goal of the Nokia-Cisco strategic alliance is to enter the emerging new operator market with a corporate service solution based on ATM, during 1996. — *Nokia.*

MCI to provide connections to internetMCI backbone

MCI has announced that it has been selected by 24 countries to provide forty international connections to the internetMCI backbone, positioning the company as one of the world's leading Internet service providers.

The service, *internetMCI international direct connect*, is offered via fibre-optic cable (where available) or satellite connections to the internetMCI backbone, which operates at 45 Mbit/s, the fastest announced service in the world. The service offers companies the opportunity to provide basic Internet services within their own countries. — *MCI.*

France Télécom premiers ATM multiservice offer

France Télécom rolled out its new *ATM Multiservice Offer* at TELECOM 95. This new high-speed voice/data/video offer is designed to meet a broad range of user needs. The offer features extensive flexibility and can be used as the backbone for an entire enterprise network — transporting voice, data and video — or for periodic or occasional transfers of high-volume traffic.

France Télécom has been a pioneer in ATM, opening an initial commercial high-speed LAN interconnection service, *Transrel ATM*, in October 1994. The ATM Multiservice Offer is designed for PBX, LAN interconnections, channel extension, computer system backup or any other service requiring flexible bandwidth. — *France Télécom.*

ORBCOMM declares world's first LEO system ready for service

ORBCOMM Global, operator of the first-ever satellite-based two-way global messaging and positioning system, has announced the

completion of its final system tests and the schedule for introduction of its revolutionary new services.

Alan Parker, ORBCOMM's President announced that the company's two-way mobile satellite system will be available initially in the United States market, with service start-ups in Canada and Mexico anticipated in 1996, and Europe and most of Latin America targeted for 1997, once local regulatory authority is received. Full global service availability is projected soon thereafter. — *ORBCOMM.*

Tarifica launches tariffs on CD-ROM

Tarifica, the independent telecommunications tariff consultancy, unveiled a new range of CD-ROM products.

Covering the United Kingdom, Europe, the Middle East, India, South Africa and the Asia-Pacific region including newly emerging economies, the new CD-ROM service offers faster access to telecommunication tariff information and provides a new level of choice for Tarifica customers. — *Tarifica.*

GTE demonstrates global telemedicine and distance learning

GTE, in conjunction with four Texas educational institutions provided a live interactive videolink between Irving (Texas) and Geneva throughout TELECOM 95, demonstrating how telecommunications can deliver healthcare and education to destinations thousands of miles apart.

Telemedicine demonstrations featured remote clinical diagnosis and consultation using interactive video and diagnostic medical equipment, such as the dermascope, stethoscope and the electronic blood pressure cuff.

Demonstrations of remote medical training included: a hands-on dissection of heart tissue conducted by a cardiologist, revealing the role of blood pressure in the circulatory system and the operation of the heart and, a hands-on dissection of an eye, giving an overview of

the outer and inner areas of the eye and describing how the parts of the eye work together. — *GTE*.

Cable and Wireless launch EURODIAL

Cable and Wireless, the worldwide telecommunications federation, have announced the launch of *EURODIAL*, a new dial-in data service featuring high-speed access, simple user interface and lower usage charges.

EURODIAL has been specifically developed in cooperation with customers to meet their key requirements of speed, simplicity, reliability and low tariffs. The service makes an ideal solution for commercial on-line information providers wishing to address the European market. It can link dispersed operations and outlying offices and so enhance the productivity and efficiency of field sales, technical staff and teleworkers. — *Cable and Wireless*.

Oracle and Philips unveil first screen telephone E-mail system

Oracle Corporation and Philips Home Services demonstrated joint technology that will enable millions of consumers to communicate and exchange information electronically, without the use of personal computers.

Oracle has developed a specialized version of its *Oracle Office* electronic messaging software that will work with Philips' screen telephones, allowing consumers to easily send and receive electronic mail across the Internet and other E-mail networks. — *Oracle*.

Personnel changes

□ in Algeria

Mr S. Youyou has been appointed Minister of Posts and Telecommunications.

□ in Belgium

Mr Elio Di Rupo has been appointed Deputy Prime Minister, Minister of Economy and Telecommunications.

□ in Ethiopia

Mr Abdulmejid Hussein has been appointed Minister of Transport and Communications.

□ in Haiti

Mr Jean Arry Ceant, has been appointed General Director of *Conseil National des Télécommunications* (CONATEL).

□ in Italy

Messrs Agostino Gambino and Guido Salerno have been appointed Minister and General Secretary of Posts and Telecommunications, respectively.

□ in Liberia

Mr Alfred B. Kollie, Jr., has been appointed Minister of Posts and Telecommunications.

□ in Micronesia

Mr Lukner B. Weilbacher has been appointed Secretary of the Department of Transportation and Communications.

□ in Myanmar

U Ba Win has been appointed Director-General of the Posts and Telecommunications Department.

□ in Thailand

Mr Wanmuhamadnoor Matha has been appointed Minister of Transport and Communications.

□ in Zaire

Mr Raphaël Muamba Nduba has been appointed Minister of Posts and Telecommunications. — *ITU Notification No. 1335*.

□ at AT&T

Mr William B. Carter, President of AT&T Submarine Systems, Inc., has been appointed to the US Trade and Advisory Committee for Africa. — *AT&T*.

□ Don Cruickshank, Director-General of Telecommunications, Office of Telecommunications (OFTEL), has announced the **extension of the scheme for the approval of metering and billing systems of public telephone operators to the cellular operators Cellnet and Vodafone.** There are plans to bring the digital *GSM* services of the two operators into the scheme in the near future. — *OFTEL*.

□ The Telecommunication Authority of Singapore (TAS) has received two offers for the new licence to operate a public trunked radio service. The competition will help **to stimulate growth and promote diversity in the range of trunked radio services and technologies available.** Users will benefit from competitive pricing, improved responsiveness to their needs and from a greater choice of services. — *TAS*.

□ *Nippon Telegraph and Telephone Corporation (NTT), Cable and Wireless, Hongkong Telecom, Itochu Corporation and NTT Mobile Communications Network, Inc. (DoCoMo),* have joined together to form *PHS International*. The new company's purpose will be **to promote and market the personal handy-phone system** for digital cordless communications across the world. — *NTT*.

□ *Graphics Communication Laboratories (GCL)* of Tokyo have announced that they have successfully **developed the world's first MPEG2 MP@ML/HL VideoEncoder ChipSet** (equivalent to high definition television) which is fully compliant with the international standards of ISO/IEC 13818-2 and ITU-T H.262. — *GCL*.

□ *Japan Telecom Co., Ltd.*, a Japanese long-distance telecommunications service provider, and *Bellcore*, a United States based software and telecommunications consulting company, have signed a Memorandum of Understanding. The MoU **establishes the**

basis for a long-term relationship between the two companies, the foundation of which will be joint cooperation on a variety of projects — including services, software systems and teaming arrangements. — *Bellcore/Japan Telecom*.

□ *Kazakhtelecom*, the long-distance and international network operator of Kazakhstan, announced at TELECOM 95 that AT&T Network Systems will play the leading role in the modernization of that country's national network. Under the agreement, *Kazakhtelecom* and AT&T will undertake a joint feasibility study in which **AT&T will provide management tools and expertise in market development, network operations, capacity planning and technical assistance.** The study will be completed in the first quarter of 1996. — *AT&T*.

□ In response to the increased implementation of fibre optic access systems in many countries, *Fujitsu* has established a global organizational structure **designed to meet the needs of different regions and customers, ranging from standard products to customized field solutions.** — *Fujitsu*.

□ *Belgacom* has announced its commitment to test Microsoft's interactive television technology platform (MITV). This company initially plans **to set up a five-client MITV configuration using ATM communications** in the laboratories of the R&D Department in Brussels.

The test will thoroughly evaluate all software components, continuous audio and video server technology, etc. — *Belgacom*.

□ **GSM cellular users may hit 100 million worldwide by the turn of the century.** Speaking at TELECOM 95, GSM MoU Chairman, Mike Short, also confirmed that cumulative global investment in GSM infrastructure to date exceeds USD 50 billion. One hundred networks are "on air" at present and he foresees 150 by mid-1996. — *GSM*.

ITU CONFERENCES

1995

Telecommunication Development Sector

- 18–20 December (New Delhi)
Regional seminar on digital broadcasting and audio refurbishing techniques

1996

- 10–15 June (Rio de Janeiro)
Americas TELECOM 96
- 19–28 June (Geneva)
Session of the Council (C96)
- 21–23 October (Geneva)
First World Telecommunication Policy Forum on "Global Mobile Personal Communications by Satellite"

Telecommunication Standardization Sector

- 15–19 January (Geneva)
Study Group 5 (Protection against electromagnetic environment effects) and its Working Parties
- 16–25 January (San Francisco)
Working Party 1/2 (Numbering, routing)
- 17–19 January (Geneva)
Joint Rapporteurs Group on Global Information Infrastructure (GII)
- 22 January–2 February (Geneva)
Study Group 4 (Network maintenance) and its Working Parties
- 29 January–16 February (Miyazaki, Japan)
Study Group 11 (Switching and signalling) and its Working Parties
- 6–15 February (Geneva)
Study Group 8 (Terminals for telematic services) and its Working Parties
- 12–16 February (Geneva)
Study Group 6 (Outside plant) and its Working Parties

- 19–23 February (Geneva)
TSAG (Telecommunication Standardization Advisory Group)
- 27 February–8 March (Geneva)
Study Group 1 (Service definition) and its Working Parties
- 11–20 March (Geneva)
Study Group 3 (Tariff and accounting principles) and its Working Parties
- 19–27 March (Geneva)
Study Group 14 (Modems and transmission techniques for data, telegraph and telematic services) and its Working Parties
- 25–29 March (Geneva)
Study Group 9 (Television and sound transmission)
- 10–18 April (Geneva)
Study Group 10 (Languages for telecommunication applications) and its Working Parties
- 15–26 April (Geneva)
Study Group 7 (Data networks and open system communications) and its Working Parties
- 29 April–10 May (Geneva)
Study Group 13 (General network aspects) and its Working Parties
- 6–15 May (Geneva)
Study Group 12 (End-to-end transmission performance of networks and terminals) and its Working Parties
- 14–24 May (Geneva)
Study Group 2 (Network operation) and its Working Parties
- 27 May–7 June (Geneva)
Study Group 15 (Transmission systems and equipment) and its Working Parties
- 1–5 July (Geneva)
TSAG (Telecommunication Standardization Advisory Group)
- 9–18 October (Geneva)
WTSC-96 (World Telecommunication Standardization Conference)

CONFERENCES EXTERNAL TO THE ITU

1996

- 9–11 January (Paris)
ITC 96 — Interactive TV Convention
Tel.: +33 1 42 67 9380
Telefax: +33 1 40 53 8155

Dates to remember:

1996

- 10–15.6
AMERICAS TELECOM 96
- 19–28.6
Council
- 9–18.10
WTSC-96
- 21–23.10
World Telecommunication Policy Forum

- 14–18 January (Honolulu, Hawaii)
PTC '96 — 18th Annual Pacific Telecommunications Conference on the Information Infrastructure: Users, Resources and Strategies
Tel.: +1 808 941-3789
Telefax: +1 808 944-4874
E-mail: ptc96@ptc.org
- 26 January (Washington, DC)
Liberalizing Telecommunications Services
Tel.: +1 202 328-9000
Telefax: +1 202 328-5432
- 31 January–4 February (Geneva)
GENERATION TELECOM 96 — The telecommunication, informatics and multimedia forum
Tel.: +41 22 979 0505
Telefax: +41 22 797 4111
- 6–9 February (Washington, DC)
Satellite 96 — 15th Annual International Conference and Exhibition on Emerging Global Markets
Tel.: +1 301 424-3338
Telefax: +1 301 309-3847
- 20–22 February (Cannes, France)
The 1996 GSM World Congress
Tel.: +44 171 453-2198
Telefax: +44 171 636-1976
E-mail: Katy_Searles@ibcuklon.ccmil.compuserve.com
- 27–29 February (New Delhi)
Multimedia '96 — International Conference on Multimedia Information Systems
Tel.: +91 11 463 1810/1820
Telefax: +91 11 463 1810
- 25–27 March (Kowloon, Hongkong)
Global System for Mobile Communications
Tel.: +852 2586-1777
Telefax: +852 2507-5666
- 15–17 April (Noordwijk, Netherlands)
Fifth International Conference on Satellite Systems for Mobile Communications and Navigation
Tel.: +44 71 344 5478
Telefax: +44 71 497 3633
- 8–11 May (Basel, Switzerland)
WORLDIDAC 1996 — Multimedia World of Training for Professional Qualification
Tel.: +41 61 686 2020
Telefax: +41 61 686 2190
- 13–15 May (Herndon, VA, United States)
AFCOM '96 — Seminar on "Global Internet Connectivity and Africa"
Tel.: +1 703 691-3570
Telefax: +1 703 691-3572
- 6–9 June (Montreux, Switzerland)
First Montreux Interactive Media Services Symposium and Exhibition
Tel.: +41 21 963 32 20
Telefax: +41 21 963 88 51
- 6–9 June (Montreux, Switzerland)
Third Montreux International Radio Symposium and Technical Exhibition
Tel.: +41 21 963 32 20. Telefax: +41 21 963 88 51
- 10–12 June (Paris)
Fifth Satel Conseil's Satellite Communications Operator and User Symposium
Tel.: +33 1 46 57 7565. Telefax: +33 1 46 57 7034
- 13–14 June (Paris)
A new dawn for the public network — The stakes for network operators in the new order
Tel.: +33 1 42 79 44 63
Telefax: +33 1 42 79 44 00
- 23–27 June (Dallas, Texas)
ICC '96 — Converging Technologies for Tomorrow's Applications
Tel.: +1 214 684-7978
- 25–28 June (Heidelberg, Germany)
NOC '96 — European Conference on Networks and Optical Communications
Telefax: +41 61 691 8189
- 20–21 November (Ottawa)
Spectrum 20/20 1996
Tel.: +1 613 224-1741. Telefax: +1 613 224-9685
- 3–5 December (Bordeaux, France)
ICIN 96 — 4th International Conference on Intelligence in Networks
Tel.: +33 56 15 11 58. Telefax: +33 56 15 11 60
- 7–10 December (New Delhi)
Third Broadcast Cable & Satellite India '96
Tel.: +91 11 462 2710. Telefax: +91 11 463 3506
- 7–10 December (New Delhi)
Third Communications India '96
Tel.: +91 11 462 2710. Telefax: +91 11 463 3506

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