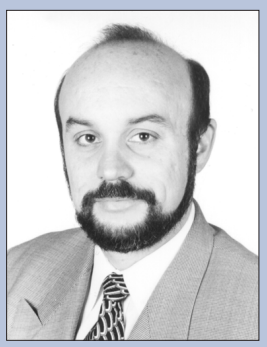
Global
Communications
Newsletter

January 1999

Editor's New Year Message

By Nelson L. S. da Fonseca



Nelson Fonseca

We live in a vibrant world in which communications and information processing are driving forces for improving the quality of life. Who would imagine some years ago that so many people would enrich their knowledge by using the Web? Who can predict the impact of new technologies in our lives in the near future?

The IEEE Communications Society has been playing an important role in the communications area since its creation. ComSoc has gone beyond the role of an "organization of choice for communications and related professionals throughout the world." Actually, ComSoc connects researchers, professionals, and students in a fast-changing world, allowing debate and dissemination of high-quality research results to a large worldwide audience.

For the past few years, ComSoc has successfully been implementing a globalization process which aims at increasing members' participation from all over the world. One of the results of this globalization process is the *Global Communications Newsletter* (*GCN*). The *GCN* is now in its fifth year. Due to the effort of both its first two editors, Andrzej Jajszczyk and Byeong Gi Lee, and *GCN* correspondents, *GCN* is a solid and popular newsletter among ComSoc members. It is my great honor to serve as the new editor of the *Global Communications Newsletter.*

The *Global Communications Newsletter* publishes ComSoc-related articles and articles about communications. ComSoc articles introduce ComSoc structure and activities. ComSoc-related articles are normally supplied by ComSoc officers and volunteers. Articles about communications bring the attention of the ComSoc community to communications issues in a specific country or region of the world. These articles are intended to make the world familiar to ComSoc members. Articles in this category are normally supplied by regular *GCN* correspondents and volunteers who have done outstanding work in the past.

During my editorial term, I would like to increase the participation of *GCN* readers interested in writing articles to introduce any regional aspects of telecommunications. To achieve this purpose, an alias was established to receive contributions. It is:

gcn@comsoc.org

Contributions can be sent to this address in plain ASCII files and should be no longer than 1000 words. Areas of interest are:

- National and regional developments in communications technology and services
- Communications research and development around the world
- Trends in regulatory and legal matters
- Market trends
- Science and engineering education
- Standards

Another point in our agenda is the reactivation of the Chapters Corner, a special column dedicated to reporting chapter activities.

Last but not least, I would like to wish all Communications Society members a happy and fruitful 1999!

A Swedish–Finnish Alliance Invests in Telecommunications in Lithuania

By Algirdas Pakstas, Lithuania and Norway

Telia of Sweden and Finnish teleoperator Sonera are now owners of 60 percent of the shares in the state-owned Lietuvos Telekomas in Lithuania. This process was completed in Summer 1998, and the price was 4 billion kroner (US$500 million). This is the largest privatization project in the Baltic states of Lithuania, Latvia, and Estonia. The purchase will definitely make the positions of Telia and Sonera in the Baltics much stronger, where they are already active in Latvia and Estonia. The Lithuanian market (~3.7 million people) is the largest in the Baltics. During the first three years Telia and Sonera are planning to invest 2 billion kroner (US$250 million) primarily in modernization of the telenetwork.

Another large development of the same Swedish-Finnish partners is the purchase of 55 percent of the shares in the Lithuanian GSM operator UAB Omnitel. Telia strongly believes in the high potential of this market. The current penetration rate in Lithuania is four mobile telephones for 100 people versus 40–50 in the neighboring Nordic countries. Omnitel started in 1995 with 6100 subscribers. The figure for July 1998 is 150,000, and by the end of the year Telia expected to reach 200,000.

While the mobile telephone market is booming, there is an "unsuccess story" for some operators who focused on the personal pager market. Norwegian

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Expanding ComSoc/Sister Society Collaboration

Provided by Carole Swaim, Executive & Volunteer Services

This text is taken from remarks made by ComSoc President Tom Plevyak at the Opening Ceremony of the International Communication Technologies Conference (ICCT '98) on 22 October 1998 in Beijing and at ComSoc's GLOBECOM '98 evening banquet on 5 November 1998 in Sydney.

Since 1996, the IEEE Communications Society has had collaboration agreements in place with communications professional organizations around the world. We refer to these organizations as Sister Societies. As we all know, strategic partnerships between organizations are commonplace in the business arena. This is clearly the case in the communications industry; an industry which is served by many professional communications organizations throughout the world. ComSoc currently has agreements with 11 Sister Societies, and the list is growing. We believe that collaboration with other professional communications organizations broadens the worldwide platform for technical presentation and debate.

Original agreements signed in 1996 are now being renewed and expanded to include innovative new elements. ComSoc President Tom Plevyak signed renewed agreements with the China Institute of Communications and the Chinese Institute of Electronics, in Beijing, on 22 October. On 6 November, at GLOBECOM '98 in Sydney, Tom signed renewed agreements with the IEICE Communications Society of Japan, the Korean Institute of Communication Sciences, and the Chinese Institute of Electrical Engineering of Taiwan. Although the historic aspect of these agreements occurred at the time of their original signings, these renewals signal growth in optimism that cooperation among the world's communications professional organizations is effective, productive, and, in fact, necessary.

Increasing participation in ComSoc conferences and Sister Society conferences as well as dissemination of technical information to a greater segment of communications knowledge workers are among the benefits of these agreements. Indeed, all ComSoc/Sister Society agreements allow members of each Society to attend major conferences of the other at member rates. Publications of each Society are available at favorable Sister Society rates. The renewed agreements with CIC and CIE include an innovative provision for Group Affiliate Membership, which allows a single annual Affiliate membership fee to bring as many as 10 Group Affiliate Members into ComSoc with sharing of *Communications Magazine.* It is clear that collaboration between ComSoc and its Sister Societies greatly enhances services for both ComSoc and Sister Society members.

Building on the strength of existing partnerships, Tom has initiated an electronic correspondence vehicle through which the ComSoc President and its Sister Society Presidents can quickly and conveniently communicate using an e-mail discussion list. Correspondence ranges from informal to formal topics, including identification of "one-voice issues" (i.e., issues that are common to many or all the Societies). Consensus positions on one-voice issues can be powerful catalysts for change. It is this discussion vehicle which led to Group Affiliate Memberships. Other issues being considered are joint awards and recognition, broadened Fellow reference procedures, and Distinguished Speaker identification. This contemporary discussion vehicle bridges the leadership of domestic and international professional organizations, and may stand as one of the most unique electronic peer discussion groups in the world.

In the modern era of communications and information technology, no communications professional organization can afford to stand alone. The Communications Society is pursuing stronger ties with existing Sister Societies, developing new partnerships with potential Sister Societies, including Societies in Australia, Germany, United Kingdom, Switzerland, Israel, and Vietnam, and initiating new programs and services that are beneficial to all members of the Societies involved.

Pictures of Tom Plevyak and Tetsuya Miki meeting with the above Sister Societies and signing one of the renewed agreements can be found on page 10 under Society News.

IEEE Press Today

By Salah Aidarous, IEEE Press Editor

It is said that engineers today must reinvent themselves every 5–10 years. Technology changes quickly and if our knowledge does not evolve to meet the needs of the times, we cannot advance. Engineers fresh out of school face a similar challenge. They have a broad understanding of electrical engineering. Once in the work force they find they need to understand a particular area of engineering in depth. But how do engineers advance their professional knowledge without going back to school? They look for publications that profile the theory of cutting-edge technologies, give a greater understanding of a technical field, and provide the applications knowledge they need to be on the cusp of advancement. The IEEE Press provides the resources members need to advance their careers.

IEEE members come to the Press for the coverage they need in a lasting format — books. The Press publishes over 300 active products that can live on a bookshelf, be pulled for instant access, and be referred to again and again. As the world's largest provider of information in the field of electrical engineering and computer science, the IEEE Press is the first place to which our members turn for the coverage they need.

IEEE Press books provide an exceptional level of quality. The Press relies on society volunteers to provide the technical balance that publications need. Technical reviews throughout manuscript development help keep content current and on track. This kind of intense evaluation helps to ensure the reputation of IEEE Press books as well as prolong their usable lives.

Another aspect of quality is the immediacy of our publications. Information is published on cutting-edge topics by the people who are involved in R&D or work with the technology. Press authors range in occupation from college professors to practitioners who are well known in their fields, and have built reputations for excellence. In partnership with authors, IEEE Press provides content for a variety of levels, including theoretical as well as applications-oriented material. Whether through a college text or an applications-oriented reference, IEEE Press provides the level of coverage members need, when they need it.

In addition to quality, timeliness, and a broad range of books to choose from, IEEE Press offers members an additional important benefit — a 15 percent discount off the list, or bookstore, price available to members only. On our copubs (books developed in partnership with other commercial publishers or associations) we offer a 10 percent discount from list, with additional member discounts available at Communications Society meetings and special promotions.

In order to stay abreast of this ever-changing market, IEEE Press needs to adapt quickly to the needs of its customers. Online sale and electronic products will have a growing profound effect on the market. IEEE Press is involved with several projects to address these needs.

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Evolution of Mobile Radio in Italy

By Pietro Porzio Giusto and Francesco Vatalaro, Italy

In the history of wireless communications, Guglielmo Marconi was the first to perform a mobile radio experiment between a base station and a moving vehicle. The experiment was completed on 18 July 1897, with the battleship San Martino of the Italian Navy sailing in the Gulf of La Spezia, Italy. A signal of about 500 MHz was transmitted, and was received on board up to a distance of about 19 km from the coast. This successful experiment can be considered the birth of mobile radio. Because of the cost and size of equipment, until the 1970s mobile radio communications were mainly used for military and security applications. The technology progress of the 1950s and 1960s made it possible to manufacture mobile radio equipment suitable for car mounting so that the era of land mobile communications for civil applications could start.

Having a limited amount of frequency resources and a large amount of customers, the GSM network of TIM had to utilize the radio spectrum very efficiently. Soon it became the most efficient GSM network in the world.

In Italy, the telecommunications operator Telecom Italia (formerly SIP) began studies and trials on land mobile radio in 1963, with the objective of establishing a nationwide public radio network. However, it took a long time to solve the problems arising from transmission impairments under mobile conditions. In particular, signaling and mobility management required long studies to find suitable solutions with the technology of that time. Only 10 years later, in 1973, could the first Italian public mobile radio system, called Radio Telefono Mobile Integrato (RTMI) or integrated mobile radio telephone, start to operate. That system only had 32 traffic channels at 160 MHz and a capacity of about 5000 users. According to traffic forecasts, that capacity would have been saturated around the mid-1980s. Therefore, in 1980 the development of a new system, called Radio Telefono Mobile di Seconda generazione (RTMS) or second-generation mobile radio system, was undertaken.

RTMS service started in 1985. It operated in the 450 MHz frequency band with 200 channels and was designed for a capacity of 40,000 users. Originally, this system was expected to meet the demand until 1995, but soon that forecast turned out to be largely incorrect. In fact, data collected at the end of 1988 indicated that the system would have reached saturation during 1989 (the market forecasts for the land mobile communications service have always been underestimated everywhere). In order to cope with the increasing demand, a sophisticated coverage technique was applied in urban areas to double RTMS capacity. Furthermore, the decision was made to introduce a new analog cellular high-capacity system. The Total Access Communications System (TACS) was chosen to implement the new cellular network. It started to operate in April 1990 with 504 channels in the 900 MHz band. Subsequently, it provided another 168 channels to be used only in the main metropolitan areas. TACS had a commercial success well beyond the most favorable expectations.

The subsequent evolution of mobile radio in Italy is strictly bound up with the development of the Global System for Mobile Communications (GSM), the pan-European digital system. Telecom Italia had its GSM network ready for foreign country roamers by October 1992, but was not allowed to start commercial service in Italy until the entry of a second operator. In 1994 Omnitel Pronto Italia (OPI) was granted the second GSM license. The GSM service of Telecom Italia fully started in April 1995. Then, OPI opened its commercial service in December 1995. Meanwhile, in order to meet the European Union directives on accounting separation, in July 1995 Telecom Italia Mobile (TIM) was established as a separate company for mobile communications within the Telecom Italia Group. The GSM network of TIM grew very rapidly. Coverage of 39 percent of the Italian territory was reached in December 1993, 51 percent in December 1994, and 61 percent in December 1995. The present (October 1998) GSM coverage of TIM is 82 percent. Since the second operator was expected to start service with a coverage much lower than that of the TIM GSM network, TIM was forced to allow OPI to use its own network, through so-called national roaming, from March 1996 to December 1997. That was the first practical implementation of national roaming in the world.

Italy exhibits the highest penetration of cellular service in Europe, with the exception of the Nordic countries (Denmark, Finland, Norway, and Sweden), which have always had the highest penetration in the world. In September 1998 the number of cellular customers in Italy reached 30 percent of the population: about 9 million customers were on the GSM network of TIM, 5 million on the OPI GSM network, and 3.5 million on the TACS network of TIM. The growth of traffic served in Italy by the GSM operators was dramatic, while TACS customers also continued to increase steadily until October 1997, when they reached 3.8 million. Having a limited amount of frequency resources and a large amount of customers, the GSM network of TIM had to utilize the radio spectrum very efficiently. Soon it became the most efficient GSM network in the world.

Also, OPI service is highly successful as indicated by the OPI position as the third European operator in terms of number of customers. Some of the keys to the success of the mass-market spread of GSM in Italy were the new tariffs. TIM introduced the family tariff in 1993. OPI introduced the Libero tariff in 1995. TIM introduced prepaid rechargeable cards in October 1996, and OPI introduced city tariffs in December 1997. In particular, the family tariff and rechargeable cards provided the strongest boost to the market increase.

To cope with the growth of GSM service demand, especially strong in urban areas, the frequency allocations at 900 MHz are frequently rearranged. Initially both operators only had 27 GSM channels each (i.e., 5.4 MHz bandwidth per transmission direction). From June 1997 to April 1998 the TACS service was allocated 12.6 MHz band. Nine main metropolitan areas were assigned additional 4.2 MHz. The GSM networks of TIM and OPI had 8.2 MHz each. In the present frequency plan, operational since May 1998, the TACS allocation has been reduced to 12.1 MHz plus 2.1 MHz in the nine main metropolitan areas only. The GSM network of TIM is provided with 8.2 MHz all over Italy and 1.8 MHz more in 16 metropolitan areas. The GSM network of OPI has 8.2 MHz national and another 0.8 MHz in the same 16 main cities. The situation is likely to be modified again soon. In fact, a new operator, Wind, has been already assigned the third GSM license, and will operate at 900 MHz outside the main cities and 1800 MHz inside them. Meanwhile, TIM and OPI will also be assigned 1800 MHz frequency allocations.

ComSoc Report from Brussels

By Jacques Kevers, Belgium

R8 Chapter Chairs Meeting

On the initiative of Jacob Baal-Schem, Region 8 Communications Chapters Coordinator, a Chapter Chairs meeting was held in Florence, 9–10 October 1998, to discuss activities as well as to bring up problems of both Region 8 and ComSoc. After a series of general presentations by R8 Director Maurice Papo (general overview of IEEE and R8 covering Europe, Africa, and the Middle East), Comsoc's President-Elect Roberto De Marca (IEEE Communications Society services and activities), former EAME chair Federico Tosco (activities of the Europe, Africa, and Middle East Region Board) and Hamid Aghvami, former UKRI Chapter Chair (UMTS/IMT2000), and attendees representing chapters from Benelux, Croatia, Germany, Hungar , Israel, Italy, Russia-Novosibirsk, and Saudi Arabia exchanged views on their respective activities and problems. Jacob Baal-Schem gave a detailed presentation on how to organize a conference, reviewing all aspects related to planning, budget, and technical program. All participants highly appreciated this initiative, expressed the wish to have such meetings organized more often, and hoped to have an increasing number of chapter representatives present.

The Information Advantage

The IEEE is rolling out a new program in November designed to help members cut through the clutter of the Internet to get information quickly and efficiently. The IEEE Information Advantage program at http://www.ieee.org/products/infoadvantage is a members-only benefit program that puts existing services, plus the new IEEE BooksPlus online book-buying service, under one roof. IEEE Information Advantage consists of Bibliographies Online, IEEE OPeRA, the ASK*IEEE document delivery service, the IEEE Personal E-Mail Service, and the new IEEE BooksPlus service. IEEE BooksPlus gives members the opportunity to purchase professional books, technical references, and textbooks online from other top computer science and engineering publishers at a 20 percent discount. These discounts are not available at bookstores, online retailers like Amazon.com and Barnes & Noble, or even by contacting the publishers directly. IEEE members will be required to register for an IEEE Web account to gain access to BooksPlus. The IEEE Information Advantage program is online as of 1 November 1998. The IEEE BooksPlus service, http://www.ieee.org/products/booksplus, will be available as of 9 November, and will feature hundreds of computer science and engineering titles.

Web Renewal Pilot

During 1998, the IEEE was working on a Web renewal project, with the objective of enabling members to renew and update their contact information via Web applications, and access other existing and emerging electronic products and services. During the second half of October (the pilot project was launched on 12 October 1998), more than 3600 members, students, and affiliates in Regions 3 and 8 renewed their membership over the Web. Almost 5200 registered for Web accounts, and over 670 used the Web to change addresses. Encouraged by this favorable response from the members, IEEE will continue to explore ways to enhancing Web services in the future.

The Brussels office is following these experiments closely, which can provide opportunities to develop its own local activities in new areas providing new electronic and information services, while maintaining its current activities at the optimal level. Its aim being to continuously improve and broaden the services provided to IEEE and Society members in Region 8, the office will welcome any suggestions or requests coming from individual members, local volunteers, or IEEE/Society entities.

Global Communications Newsletter

www.comsoc.org/pubs/gcn

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IEEE PRESS BOOKS/*(Continued from page 2)*

IEEE/OUP Encyclopedia

The IEEE/OUP Encyclopedia project will be published in June 2001. This product has both print and electronic components, and will encompass all the major areas of electrical engineering and computing. With the electronic aspect of this project, the Press will be moving into a new level of publishing.

Additional information on IEEE Press books is available from the following sources.

Information for authors and potential authors:
http://www.ieee.org/pubs/press/kit.htm

Information on books of particular interest to Communication Society members: http://www.comsoc.org/pubs/books/booklist.html#COMMUNICATIONS BOOKS

To purchase IEEE Press books via e-mail: customer.service@ieee.org

SWEDISH-FINNISH ALLIANCE/*(Continued from page 1)*

Telenor International recently lost 200,000 million kroner in Eastern Europe and is withdrawing from this sector. Implementation of the pager network project in Lithuania, Romania, and Russia has been done since 1996 via Comet Holdings, which was fully owned by Telenor International. The reason for the fiasco was incorrect estimation of the market in these countries, especially underestimated growth of GSM services. It is worth mentioning that only in Lithuania is the mobile telephone market competitive, with two GSM operators and one NMT-450 operator. Thus, the economic crisis in Asia cannot be blamed for everything.