

GLOBAL Communications NEWSLETTER

July 2013

ComSoc: A Retrospective on this Century (Part 1): Touching the Globe

*By Celia Desmond, Past ComSoc President
(with thanks to Roberto De Marca for his comments)*

Chance comments recently prompted me to reflect on ComSoc accomplishments over recent years. Consequently, I thought it would be interesting to review some pertinent published material reflecting on contributions of the six most recent Past Presidents, beginning with 2000, and running through to the end of the term of Byeong Gi Lee in 2011. Finding this material was actually easy, as the ComSoc Presidents have traditionally published a column each month in *IEEE Communications Magazine*. Generally, these columns were co-authored with the Vice Presidents, Directors, Committee Chairs and other contributors, providing an opportunity to share and highlight their accomplishments.

This article, the first of three, focuses on the many achievements during the period from 2000-2003. I hope that this brief survey will illustrate how the significant work that our lead members — not only the Presidents, but their full boards and related committees — have improved the Society over recent years. In most cases the Past Presidents continued to serve both ComSoc and IEEE, even today. Short notes showing some of their continuing contributions follow the names of the Past Presidents.

Through these we can see some continuing trends. One of these is the continued globalization of ComSoc. In fact, since before 2000, we have always had BOG representatives from around the world, some elected and some via appointments.

We credit the exceptionally congenial work atmosphere that existed among our Board members as one of the key factors responsible for these very successful years. A second key component is the dedicated and ongoing loyal support provided by IEEE staff. Countless times we would have been lost without the experienced advice of their leader, Executive Director Jack Howell.

Let's look at these accomplishments.

Roberto de Marca (2000 – 2001)

(Roberto continued to support ComSoc and IEEE in many positions. His current position, in fact, is President Elect of IEEE.)

•The stock market downfall that began in March 2000 caused massive layoffs in the telecommunications industry and also caused companies to considerably reduce expenditures. Still, the IEEE Communications Society continued to show a



Roberto De Marca



Celia Desmond

steady (6 per cent per year) growth in membership, and reached the 62,000 member plateau.

•Revenues due to advertising set an all-time record in 2000.

•In wireless, at the beginning of 2002, three new periodicals were launched: *Transactions on Wireless Communications*, *Transactions on Mobile Computing*, and *Pervasive Computing Magazine*. The latter two publications reflected the perception that increasingly our constituency is

working in the higher layers of the protocol stack and the need to offer services to these members. These publications were in partnership with other IEEE societies illustrating the strategy of teaming with other organizations in order to expectantly increase our coverage in a given field.

•We strengthened our wireless conference portfolio by teaming WCNC with the CTIA trade show and with the appointment of an illustrious Steering Committee for the conference.

•We formalized our partnership with PIMRC.

•A successful IPv6 workshop was held in December 2000.

•We saw progress in cooperation with the Internet Society (ISOC).

•There was a launching of a plan for a new optical networking series within JSAC.

•The first ComSoc Global Chapter Chairs Congress (GCCC) was held in San Antonio, Texas.

•There was a fivefold increase in the number of DLTs the society was capable of funding in each of the four ComSoc regions.

•In 2001, we changed our mail service to an air delivery system that promised to deliver our publications to members all over the world less than a month after they were out from the printer.

•The Industry Leader Award was created, with the first recipient being Keiji Tachikawa, CEO of NTT DoCoMo.

•CommExpo was launched in 2003, postponed from 2002 due to the September terrorist attacks.

•We approved a business relations committee that reported directly to the society president.

•We created the Presidential Industry Advisory Board (IAB).

(Continued on Newsletter page 6)

Cluster Saude: An Approach to eHealth in Spain

By Alvaro Gomez Vieites, NCG Business School, Spain,
and Ana V. Alejos, IEEE ComSoc Spain Chapter Board Member

The role of eHealth in the coming Health Care systems is undeniable, and for this reason in the last decade a large effort and budget has been dedicated to encourage the development of this industry. This term should not be merely understood as an exchange of data over the Internet; its scope is wider and refers to the technology used for clinical, educational, research, and administrative purposes, both at the local site and across wide geographic regions [1]. In broad terms, eHealth represents the last goal of the interaction of the different agents of the health sector under criteria of ubiquity and real-time operability. The key stakeholders in the eHealth industry include employers, patients, providers, and health plans [1]. Each of these stakeholders can enumerate pros and cons needed to be considered for the design of an efficient eHealth system.

Despite all the work done, the present status of eHealth is not satisfactory partly due to the under investment, the problem of privacy caused by the use of Internet based solutions and infrastructure, as well as the idea of low returns expected by the investors. The lack of institutional involvement as a catalyst of this kind of macro projects is also an unsolved issue, especially in the countries with national health care systems. Taking into account all the above considerations, an eHealth approach has been recently outlined in Northwestern Spain.

During the first semester of 2012, the NCG Business School has been responsible for elaborating the Strategic Plan of the new Health Cluster for the Regional Government of Galicia (Spain) — namely Cluster Saude — counting on the active participation of constituent companies, the three Galician Universities and the Regional Counsel of Health. The participation of the different social, technical and economic agents aimed to trade-off and overcome the different point of views and interests classically involved in the development of an eHealth project.

The Cluster was primarily created with the mission of boosting the competitiveness of the health industry in this region of Spain, contributing to its economic and social development through cooperation between all public and private

institutions related to the health sector. The Cluster creation responds to the timing needs of this region that are shared by most of Europe: the progressive aging of the population and the need to update, expand and optimize the use of health resources. The eHealth route has dominated the definition of the Strategic Plan.

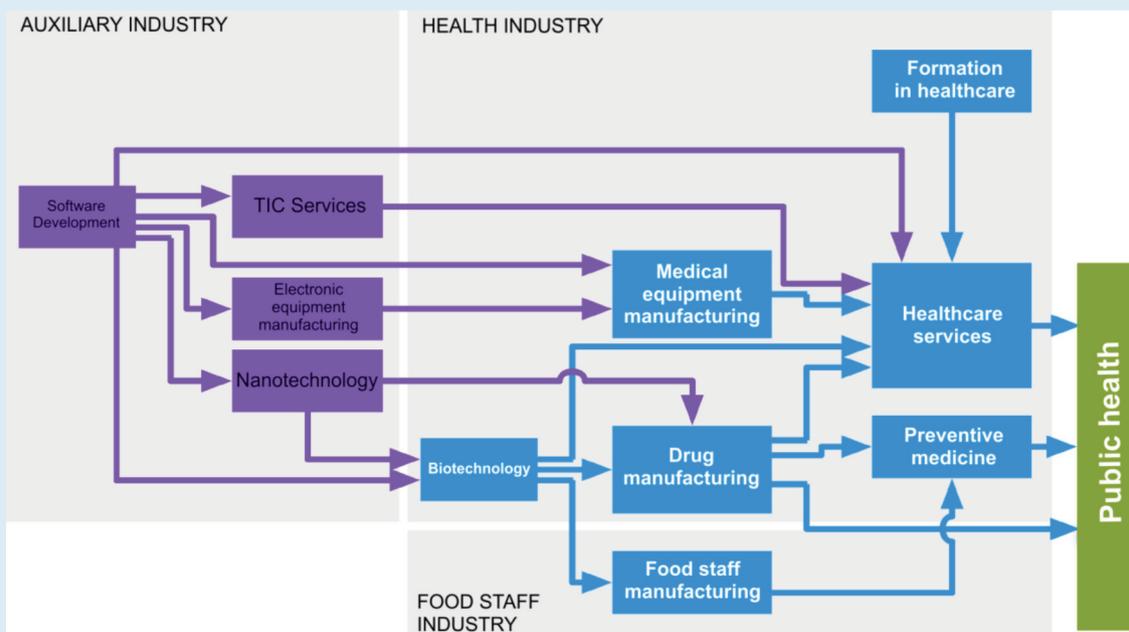
For the preparation of this Strategic Plan, the NCG Business School proceeded to perform a field work with the constituent entities, and multiple workshops were held in order to validate the main views and agreements on strategic objectives and lines of action that should be addressed in the coming years from this Cluster. The result of this consultation process was the design of a map comprised of a set of strategic objectives with two key goals of first level: boost the competitiveness of the Galician healthcare industry, and to foster cooperation between all public and private institutions related to the health sector in Galicia.

In order to achieve these objectives, it has also been defined in the Plan a number of general strategic actions, with specific characteristics and agents responsible for their execution within an established time schedule. The idea is to transform the mission and vision expressed above in quantifiable and measurable objectives, which together causally interrelated comprise the aforementioned map or guide for the success of the Strategic Plan.

The Galician Cluster Saude is then established as a group of companies, research centers, organizations and institutions based in Galicia - or with a significant economic activity developed in this region - operating in the health macrosector and oriented to the promotion of innovation, competitiveness improvement and expanding companies that jointly comprise a huge eHealth system approach. All the sectors involved in the value system of health should be cooperating to protect people's health and increase the efficiency of the global health system.

The main objectives of the Galicia Cluster Saude for the 2012-2014 phase are:

(Continued on Newsletter page 6)



System value of the health macrosector.

Bosnia and Herzegovina Preparing for the EU Accession

An interview with Kemal Huseinovic,

Director General of Communications Regulatory Agency of Bosnia and Herzegovina

By Nicolae Oaca, Romania

What is Bosnia and Herzegovina's preparative for the EU accession?

The Communication Regulatory Agency (CRA) is an independent authority established in 2001 with converged competencies to regulate our telecommunications and broadcasting markets in line with the Communications Law.

CRA has been a beneficiary of a number of the EU funded projects - the last one in 2011 referring to build on our capacity in the field of telecommunications and harmonization of legal framework with the EU norms. This was for the first time when the EU financed a project intending to develop our telecommunications sector. The process of harmonizing the regulatory framework in the field of broadcasting with the provisions of the EU Audiovisual Media Service Directive has already been completed and is fully implemented as of 2012.

Creating conditions for the full liberalization of the telecommunications market is our priority. In our work we follow international standards and principles leading to increasing level of competition, which notably benefits the end users and is reflected in the larger number of operators and services.

Reference Interconnection Offers (RIOs) for three operators with significant market power (SMP) have been in place since 2005, and is regularly updated according to the market evolution. For instance, RIOs in fixed telephony has been in place since November 2005, in mobile since March 2011, while Reference Unbundling Offers (for LLU) have been in place since 2010, without being a success story. Furthermore, Carrier Selection (CS) and Pre-selection (CPS) have been in place since 2006/2007 as a part of RIOs of SMP operators, and we have seven altnets offering to their customers CS and CPS services.

In September 2012, we implemented number portability in fixed telephony, while by year-end 2012, 1.800 numbers were ported. Also, in January 2013, we implemented it in mobile telephony network.

Furthermore, with the entrance of the mobile virtual networks operators, we expect that number of services and marketing innovations to thrive. Regulatory framework is adopted, but its implementation awaits the adoption of the Telecommunications Sector Policy 2013-2017, which falls under the competencies of our Council of Ministers.

In 2013, we designated all three existing cellcos as SMP for wholesale mobile call termination and for wholesale mobile access. Based on the results of analysis we proposed to reduce mobile termination rates using a glide path to €0.137/minute in July 2015, from €0.332/minute in 2012.

CRA has undertaken three markets analyses for fixed telephony. The first two markets analysis were concluded in 2007 and 2010, by designating BH Telecom, Telekom Srpske, and Hrvatske Telekomunikacije Mostar as SMP operators in retail and in wholesale markets, imposing RIO publication, price control and cost orientation of retail and wholesale tariffs and retail tariffs rebalancing. In 2013, we are going to make the third market analysis based on the EU regulation.

We proposed a glide path to decrease SMP's interconnection rates taking into account average values in the EU and in SEE region and equal rates for three SMPs and 13 alternative operators on the fixed telephony market.



Kemal Huseinovic

Tariffs orientation on costs, as prescribed by the EU, is planned to be implemented soon, depending on financial resources. Some of the tariffs orientation is based on benchmarking, following the EU and SEE practices. Additional support in this area by the EU would be beneficial considering the fact that such models are costly.

CRA starts preparation for the general authorization regime which foresees the transfer from the current licensing system to a completely new concept. .

What are your plans for the analogue TV switchover and digital dividend band usage?

We planned TV switchover for 01.12.2014.

As far as digital dividend is concerned, Bosnia and Herzegovina has already stated its commitment at the WRC07, when we agreed with the introduction of mobile service into the released spectrum of digital dividend. Very soon, depending on adoption of Telecommunications Sector Policy, we expect to start activities on placing this spectrum on the market.

A few words about your telecommunications market by year-end 2012

As in other countries in transition, our mobile communications and Internet markets are continuing to grow and fixed telephony to decrease. The number of active SIMs reached about 3.35 million or 87.25% penetration. Our three mobile network operators cover about 99% of population and 90% of territory. Market leader is BH Telecom. Sarajevo with 43.81% market share by sold SIMs, Telekom Srpske Banja Luka has 43.17%, and Hrvatske Telekomunikacije Mostar 13.02%. Our cellcos have the same amount of spectrum in three bands: GSM900, GSM/UMTS 1800 and IMT1900-2100MHz. Fixed telephony penetration is low, 22.74%, mainly due to the strong adoption of mobile telephony. Internet usage reached 57% of population and continues to grow fueled by investments in optical fiber and 3G networks.

What are your medium term challenges and plans?

We have to play an important role in putting our telecommunications in line with the EU requirements and to make our market part of single EU market. We could face a complex and fragile political and economical context, which could hamper faster development of market or delay investments. But we are able to comply with all these challenges to regulate our market as efficiently as possible leading further to its liberalization, as long as CRA has the utmost understanding and support from the industry it regulates and its end-users. Stable and predictable rules are very important for market development, so we are thinking on a medium term strategy to attract investments, to protect end-users, to better use our scarce resources. Bosnia and Herzegovina has to find its own way to meet European requirements bearing in mind the capability of our local market and industry to adjust to dynamic changes. We have to accelerate switchover process and the digital dividend usage for mobile communications to connect our country to broadband networks, to accelerate our economic growth.

Organization and Activities of the ComSoc North American Region

By Yigang Cai, ComSoc NA Region Director, and Alan J. Weissberger, USA

With its 20,000+ members, the IEEE Communications Society (ComSoc) North America Region (NAR) is the largest segment geographical regions within all of ComSoc. The NAR is organized into 7 sub-regions (IEEE Region 1-7) and 93 chapters in the US and Canada.

The NAR website (<http://chapters.comsoc.org/NA/>) provides news and additional information about the region. Each local ComSoc chapter has its own website which can be accessed via the directory at: <http://www.comsoc.org/about/chapters/NARegion>

The North America Board (NAB) of governors manages the NAR. It consists of 11 members [one representative from each of the seven sub-regions, a Distinguished Lecture Tour (DLT) coordinator, NAR Director, Past NAR Director and Member Program Development (MPD) Director]. The NAB acts as a management body which is responsible for initiating, stimulating and coordinating the activities of ComSoc chapters and members throughout the North America Region. The NA Director and NAB focus on promoting and furthering the interests of individual members in the NAR to increase member retention, recruitment and recognition.

For retaining and expanding the ComSoc membership base, improving chapter organization, and enhancing local activities, the NAR holds a Regional Chapter Chair Congress (RCCC). The Congress encourages sharing, feedback, and networking among chapter chairs, staff, and ComSoc officers.

The North America Region introduced the first region Strategic Discussion Meeting (SDM) on September 2, 2008. The SDM focuses intensive half-day to one day meeting with key regional leaders and chapter chairs. The NAR has held four regional SDMs for sub-regions 1, 4 and 6 chapters respectively. The SDM has proven to be a very effective (plus low cost) tool of understanding local ComSoc operational issues and planning for specific actions. It is generally held when there is no RCCC in the calendar year. The North America Region also organizes additional chapter chairs meeting during ICC and Globecom (the two flagship ComSoc annual conferences).

Regional Chapter Chair Congress - December 2012

The most recent NA RCCC on December 6-7, 2012, was held in conjunction with Globecom 2012 in Anaheim, CA. 32 North America Chapter Chairs and other NA region officers attended this meeting. The group discussed many common issues and concerns, such as organizing successful chapter level events, fund raising, Distinguished Lecturer Tour (DLT) and the Distinguished Speaker Program (DSP). All chapter chair attendees expressed their satisfaction with this meeting while benefiting greatly from the presentations, discussions and training. Chapter chairs were inspired to take action items back to their local chapters, enhance membership development and chapter growth.

NA Distinguished Lecturer Tour (DLT) Program

The NAR chapters have a strong history in supporting the Distinguished Lecturer Tour (DLT) program. There were dozens of DLTs completed in recent years. For example, 11 DLTs in 2009, 10 DLTs and 17 DSPs in 2010, 14 DLTs and 8 DSPs in 2011 were held in the NAR (Yigang Cai was the NA DLT co-coordinator during those years). The region will encourage support of more DLT/DSP planning in 2013 and future years. Chapter chairs and regional representative will work with NA DLT coordinator Debi



Group photo after the NA RCCC 2012.

Siering and ComSoc Distinguished Lecturers to drive these programs to fruition.

2013 NAR Goals and Objectives

This year, the NAR will work with a few inactive chapters to engage more local programs/events, and retain chapter members. The NA Region will identify and introduce educational program and workshop for training new chapter chairs and increase chapter chair leadership knowledge and skills. The NA Region will revisit existing programs of industry and student involvement, and research and define new initiative that make significant and visible advantages in those programs. The NAR will plan 2013 activities:

- Strategic Discussion Meeting (SDM) – Focused intensive half-day or one-day meeting with key regional leaders in Regions 2 and 3 in the second half of 2013.
- NA Board (NAB) meetings during ICC 2013 (Budapest, June, 2013) and Globecom 2013 (Atlanta, December, 2013) with other chapter chairs attending conferences.
- Continue strong DLT/DSP programs for NA chapters, target 1/3 chapters involve in DLT/DSP activities.
- NA Webex/Webinar to local chapters. The first Webinar will be held in March/April with invited distinguished lecturer Dr. Stephen Bush of GE Research on a topic of “Ad hoc Nanoscale and Molecular Communication Networks.”
- Continue to promote the social media presence, ComSoc Blog, Facebook, LinkedIn, etc.

ComSoc Santa Clara Valley (SCV) Chapter- the largest ComSoc chapter within NAR

One of the most active ComSoc chapters anywhere, the ComSocSCV chapter is also the world's largest with 1218 members as of January 2013. It's the only active ComSoc chapter between Los Angeles, CA and Portland, OR with programs that include: technical meetings, 2 day workshops, industry tours and seminars (to telco research labs/innovation centers), networking socials, an IEEE member only discussion group, Linked In group and Facebook following.

A few of the many ComSocSCV highlights from 2012 include:

- Joint IEEE Comsoc & CaS Workshop: Next Generation Circuit & Systems, Communication and Sensor Technologies in Mobile Devices.
- Software Defined Networking (SDN) with the Executive Directors of the Open Networking Research Center and Open Networking Foundation.

(Continued on next page)

NORTH AMERICAN REGION/continued from page 4

- Deutsche Telekom (DT) T-Labs Briefing with partner companies Mozilla, Nicera (now VMWare), and UC Berkeley Seismic Labs.
- Evolution and Future of Optical Transport Networks & Photonic Integrated Circuits by Infinera.
- Heterogeneous Networks (HetNets) in Mobile System Evolution by Verizon and Ericsson's Director of Research.
- Panel on Mobile Backhaul featuring Infonetics Research market forecasts and technical aspects of microwave backhaul for small cells.

- Mobile Patent War panel with Samsung, Qualcomm, HP, Google, Rambus and Santa Clara University Law School.

On March 6, 2013, the ComSocSCV chapter will visit the Sprint Innovation Center in Burlingame, CA for a tour and seminar on 4G technologies, Network Vision, Software Defined Radio's and Fiber Initiatives. The chapter had a similar tour/briefing in March 2011 and we're very much excited about this one. For a list of upcoming and past ComSocSCV activities, please visit the chapter website at: <http://www.ewh.ieee.org/r6/scv/com-soc/index.php>

Eminent Scientists, Top Researchers, Young Scientists Gathered for a Week at the 2013 Global Young Scientist Summit@one-north in Singapore

By Fanny Su, IEEE Asia Pacific Operations Centre / Communications Society Office, Singapore

The inaugural opening of the 2013 Global Young Scientists Summit@one-north, held in Singapore on 20-25 January, was attended by 500 guests comprising of 15 world renowned Nobel Laureates, Fields Medal and Turing Award recipients, 280 young researchers and scientists from around the world, guests from local and international research community, and prominent industry figures.

The opening ceremony at the University Cultural Centre, National University of Singapore was graced by special guests, Countess Bettina Bernadotte, President of the Council for Lindau Nobel Laureate Meetings and HRH Princess Maha Chakri Sirindhorn of Thailand.

In his opening speech, Deputy Prime Minister Teo Chee Hean highlighted the uniqueness of this Summit as one that was multi-disciplinary in nature and focusing on user-inspired research. Prof. Douglas Osheroff, Nobel Prize in Physics (1996) followed in his keynote speech with his life learning experiences of trying to find answers from nature, sharing and collaborating with research and treating failure as an invitation to investigate further.

During this weeklong summit, there were plenary sessions and inspiring talks to provoke thoughts and discussions to spur the young participating scientists to research on pressing issues to meet the future needs of mankind.

IEEE Fellow, Professor Jon Peha from Carnegie Mellon University was invited to address the 2013 GYSS attendees with his technical presentation on "A new era in Spectrum Management". He presented the challenge of ever increasing demand for spectrum, and suggested a fundamental shift in managing spectrum to expanded spectrum sharing while keeping interference under control. Jon referred to both "white space" and "grey space" sharing as possible ways of increasing spectrum utilization.

During his visit to Singapore, Jon also gave a technical presentation, organized by the Institute for Infocomm Research (I2R) at the Fusionopolis, and sponsored by the Singapore ComSoc chapter. Jon delved into the topic further, by exploring the possibilities and challenges of spectrum sharing with existing radar systems, and thus allowing greater utilization of this spectrum. His lecture was well attended by 80 participants from I2R, the Infocom Development Authority (IDA) of Singapore, and members from the IEEE Singapore ComSoc chapter.



Jon Peha delivering technical lecture at 2013 GYSS.



Jon Peha sharing his expertise with the research community in Singapore.

We were pleased that Jon Peha accepted this rare opportunity provided by Prof. Low Teck Seng, CEO of National Research Foundation, Singapore to be part of the inaugural 2013GYSS, which helped raise IEEE awareness amongst the young elite researchers who gathered in Singapore. Prof. Jon Peha served from 2008-2011 as Chief Technologist of the US Federal Communications Commission, and later as Assistant Director of the White House Office of Science & Technology Policy where he focused on Communications and Research.

COMSOC RETROSPECTIVE/continued from page 1

Celia Desmond (2002-2003)

(Celia continued to support ComSoc in many positions, most significantly as the leader of the WCET program. In IEEE Celia went on to become the IEEE VP Technical Activities, a Vice Chair of PSPB, and IEEE Secretary in 2007 and 2012.)

- Celia was the first woman to be elected ComSoc President.
- In Jan 2000, ComSoc committed to digitize past and current publications on DVD and to build an inward-focused “vertical” portal related to the core business. This portal connects the diverse members spread wide across the globe.
- ComSoc created and introduced the Commontology, a navigable, linked, digital library containing all peer-reviewed ComSoc published material.
- ComSoc introduced web-based tutorials which were sponsored jointly with Stevens Institute of Technology.
- We also introduced a program of Voice-over-PowerPoint tutorials called Tutorials Now!
- We added to our portfolio of publications with a new magazine on optical communications.
- We added to the Board of Governors a new Director of Online Services, keeping up with technology.
- The Society maintained a strong focus on industry in publications and conferences. Even Chapters were encouraged to work with companies to hold events.
- We strengthened our relationship with IEEE, backing their requirement to make 20% surplus on conferences and asking them to put volunteer oversight in place for IT.
- We made further changes to our management structure by creating conference steering committees for all major conferences.
- We updated the ComSoc Field of Interest (FOI) statement.
- The Nominations and Appointments committee developed a formula for nominations to ensure that we would always have a geographically balanced BOG.

- Five new Sister Society agreements were signed.
- We started publishing information about our contribution to IEEE Standards to make ComSoc visible in the area of Standards.
- Even today we continue to have highly professional staff who have survived two moves within New York. The first move occurred during this term.
- We introduced a two-tier publication subscription option offering electronic only or print and electronic options.
- Since 2000, the number and variety of ComSoc publications has increased. In 2003, the launch of a new magazine—*IEEE Optical Communications*, and also *Design, Technologies and Applications* was started as a supplement in *IEEE Communications Magazine*.
- ComSoc magazines ranked top in the science citation index of year 2002.
- ComSoc signed, in 2002, 3 new Sister Society agreements with Communications and Information Society, Croatia, Latvian Information Technology and Telecommunication Association and Electrotechnical Association of Slovenia; and (as of GLOBECOM '03) The Scientific Association for Infocommunications of Hungary. In 2003 we signed two more. During this term we also signed extensions to existing agreements with various countries.
- The BOG established some more uniform policies for management of technical committees.
- We built a closer linkage between the BOG and Chapters by collocating management meetings with Regional Chapter Chair Congresses and sharing information between groups.
- We made initial forays into some new tech. areas including nanotechnology and consumer communications.

EHEALTH IN SPAIN/continued from page 2

- Boost the competitiveness of the Galician Health industry.
- Increase R+D+i capacity of Galicia in the health sector.
- Consolidate existing relationships and create new links between different actors as driving innovation in the health sector.
- Encourage cooperation between all public and private institutions related to the health sector in Galicia.
- Support the creation of a suitable environment for the development of businesses and attract new organizations into the health sector.
- Encourage the exchange of external relationships with other state and international agencies.
- Develop an organizational structure for the management and promotion of Cluster's activities.
- Stimulate the activities of the Health Organization Group.
- Stimulate the activities of Food and Health Group.
- Streamline the activities of Biotechnology Group.
- Attracting talent and knowledge into the health sector.
- Attract seed capital and venture capital.
- Promote the creation of spin-offs and start-ups.
- Align health system needs with the capabilities of Cluster Saude members.
- Increase the number of participant members.
- Act as first party with the Administration and other entities and clusters in projects related to health and healthcare system.
- Create a measurable and transparent governance system.

References

- [1] The Role of E-Health in the Changing Health Care Environment, *Nurs Econ.*, 24(6), 283-288, 2006.

GLOBAL Communications NEWSLETTER

www.comsoc.org/gcn

STEFANO BREGNI
Editor

Politecnico di Milano - Dept. of Electronics and Information
Piazza Leonardo da Vinci 32, 20133 MILANO MI, Italy
Ph.: +39-02-2399.3503 - Fax: +39-02-2399.3413
Email: bregni@elet.polimi.it, s.bregni@ieee.org

IEEE COMMUNICATIONS SOCIETY

NELSON FONSECA, VICE-PRESIDENT MEMBER RELATIONS
PEDRO AGUILERA, DIRECTOR OF LA REGION
YIGANG CAI, DIRECTOR OF NA REGION
FAMBIRAI TAKAWIRA, DIRECTOR OF EAME REGION
KWANG BOK LEE, DIRECTOR OF AP REGION
ROBERTO SARACCO, DIRECTOR OF SISTER AND RELATED SOCIETIES

REGIONAL CORRESPONDENTS WHO CONTRIBUTED TO THIS ISSUE

NICOLAE OACA, ROMANIA <NICOLAE_OACA@YAHOO.COM>

EWELL TAN, SINGAPORE <EWELL.TAN@IEEE.ORG>

ALAN J. WEISSBERGER, USA <AWISSBERGER@SBCGLOBAL.NET>



A publication of the
IEEE Communications Society