# THE CHALLENGE OF INDUSTRY ENGAGEMENT

Two years ago, the IEEE Communications Society (ComSoc) started putting additional focus on industry membership by expanding the role and responsibilities of the Vice-President of Standards Activities to include also Industry Activities. The new Vice-President of Industry and Standards Activities (VP-ISA) has acquired the additional responsibility of growing industry membership and engagement, including the responsibility of fostering and implementing activities that are of interest to industry and government members including practitioners, managers, executives, young professionals, and other industry professionals. In this month, I am pleased to introduce Stefano Galli, who will describe our challenges as well as share with us his plans in this important area for ComSoc.

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Stefano Galli

Dr. Stefano Galli is the new ComSoc VP-ISA as of January 2018 and will serve through the end of 2019. He has been a Lead Scientist at Huawei Technologies, New Jersey, since 2016. In his previous positions, he served as Director of Technology Strategy in ASSIA, Director of Energy Solutions R&D for Panasonic Corporation, Senior Scientist at Bellcore (now Ericsson), and independent consultant. In his carrier, he worked on several standards, submitting numerous contributions to IEEE, ITU-T, ETSI, ETSI-NFV, BBF, ATIS, and NICC. He currently serves as Rapporteur (Chair) of the ITU-T "Communications for Smart Grid" standardization group and has served as Co-Chair of the "Communications Technology" Task Force of the IEEE 2030 Smart Grid standard, and Co-Leader of the "Theoretical and Mathematical Models" Sub-Group of the IEEE 1901 Broadband over Power Lines standard. He is a Fellow of the IEEE and is currently serving as the IEEE Fellow Committee Chair. He has received the IEEE ISPLC Best Paper Awards in 2010 and 2015, the 2014 Broadband Forum Outstanding Contributor Award, the 2013 IEEE Donald G. Fink Best Paper Award, the 2011 IEEE ComSoc McLellan Meritorious Service Award, and the 2011 Outstanding Service Award from the IEEE ComSoc Technical Committee on Power Line Communications. He holds 25 issued/pending patents, has co-authored 100+ papers, and has co-authored one book and several book chapters. He received his Ph.D. in electrical engineering from the University of Rome (Italy) in 1998.

The structure created around the VP-ISA includes four Boards chaired by Tarek El-Bawab, Nada Golmie, Ashutosh Dutta, and Ian Wong, as shown in Fig. 1. The development of standards is done in ComSoc's Standards Development Board (COM/SDB) and its related Standards Committees. This work is augmented by the Standards Activities Board, which brings knowledge and awareness of ComSoc standards activities to a wider audience through its conference (IEEE CSCN) and magazine (*IEEE Communications Standards Magazine*). The Industry Outreach Board is responsible for engaging new audiences with an emphasis on the global practitioner community, and the Industry Community Board is tasked with organizing and engaging our membership, particularly practitioners, in communities of common interest to industry.

## THE PROBLEM OF DECREASING INDUSTRY ENGAGEMENT

This focus on industry members in ComSoc is not unique, as many IEEE Societies are today reacting to a growing difficulty in recruiting, retaining, and engaging industry members, especially those not directly involved in R&D. Understanding this trend and working toward reversing it is essential because the vitality of our Society and IEEE as a whole, the impact of publications and conferences in the research community, and the value of networking with peers rest on an active and balanced presence of academics, industry/Government researchers, practitioners, managers, professionals, and students. Furthermore, having engaged academic and industrial members can help ComSoc better understand the gap between academic and industrial research, which is a healthy gap only if it is not too large. Our Technical Activities efforts (from conferences to publications, to standards, to education and training, etc.) need to be attuned to that gap to stay relevant and interest a wide constituency. If not, we risk serving badly both constituencies with inevitable loss of relevance.

It has often been stated that a major reason for the loss of industry membership and engagement in IEEE across Societies, and including ComSoc, has its roots in the fact that technical activities in IEEE (and their center of weight, the Society Technical Committees) have been inadequate or unsuccessful or simply uninterested in being more inclusive of industry interests. This may be partly true and Technical Committees could certainly do more to attract the interest of industry people, especially the non-researcher ones. However, there are also many externalities that have made it difficult for most industry people to participate to IEEE activities. For example:

**1. Corporate R&D has changed.** There are many more incentives and pressure for delivering short term results rather than investing in long term R&D. For example, the financial industry demands quarterly estimates, contracts to executives have short-medium duration with incentives on short term stock appreciation, etc. The actual research being done in industry today has dramatically diminished since the golden years of a couple of generations ago when research conducted in certain corporations was not that different from research conducted in academia. Growing competitive pressure and the resort to the use of trade secrets rather than patenting, has greatly affected the possibility of industry researchers and practitioners contributing to conferences and publications.

**2. Incentive for industry people are lacking.** While academics are incentivized to produce scholarly output and to participate in scholarly activities as part of their job, industry people find it increasingly difficult to do so as companies no longer set incentives for — and might sometimes actively discourage – participating in IEEE activities or even seeking recognition as, for example, Fellow elevation [1]. Today, it is very much the case

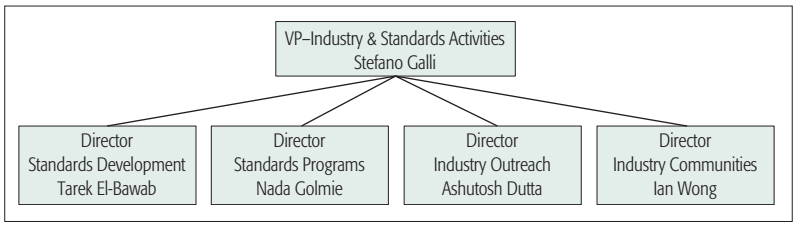


Figure 1. The structure of ComSoc's Industry and Standards Activities.

that industry people work breathlessly from deadline to deadline, often supporting obsolete or legacy products, and all this makes it difficult for them to submit papers or even merely contribute their time as volunteers. And this difficulty often becomes an impossibility when activity in IEEE (from publishing to volunteering) is neither recognized nor encouraged by management.

These considerations are supported by a 2006 study edited by Robert Lucky and Jon Eisenberg for the U.S. National Academy of Engineering which is very relevant for ComSoc [2]. The study showed a sharp change in publication trends in telecom research between 1970 and 2005. In 1970, about 80 percent of papers published in *IEEE Transactions on Communications* were authored by industry people, but in 2004 that number declined to 15 percent (U.S. industry alone decreased from 70 percent to 7 percent). Similar trends hold also for conference papers (e.g., ICC and Globecom). The reduced contributions from industry have been partially offset by an increase in the number of academic papers, from both U.S. and foreign universities.

To some extent, the decrease in industry participation in IEEE activities is basically "physiological," driven by externalities and, unfortunately, there is little we can do about it. Given the strong role of these externalities, it is difficult to adequately address the chronic decrease in industry membership and engagement, and what is needed is to reformulate the problem statement. IEEE itself has been addressing this problem in a variety of ways, including recently creating the Industry Engagement Committee, a new standing committee reporting to the IEEE Board of Directors. This new committee has the responsibility of launching initiatives and recommending to the IEEE Board of Directors needed development of products and services to meet the needs of industry, government, and industry professionals.

ComSoc's approach in 2018-2019 will be to maintain and nurture the excellence in its Technical Activities (to which industry and academia should contribute together with sometimes different but legitimate points of view and priorities) and augment those with other activities and services that are more suitable for an audience that is not interested in the scientific details of a technology but rather in its applications, standardization, place in the ecosystem, product-oriented design, etc. In engaging this new type of audience that is not interested in the deep technical and scientific analysis typical of scholarly research, then the challenge is to work toward differentiating our products and services while coupling them with a stronger membership value proposition.

## A New Framework to Attract Industry Professionals and Practitioners

Two years ago ComSoc launched a series of practitioner-oriented "Industry Summits" with invited speakers addressing topics of concern to local industry and practitioners, e.g. the "5G Summits." These summits, held mostly with the participation and cooperation of local ComSoc chapters, serve to provide local practitioners with state of the art content focused on their needs and interests. Leveraging some desirable attributes of the current framework (Chapter-centric local model, no paper submission, one day events), ComSoc is establishing a new framework for its Industry Summits where an increase of membership is sought more than establishing sources of short term revenue. The new framework aims at making Industry Summits self-sustaining engines of membership growth by providing local engineers with low-cost access to technical information on hot-topic trends, education and training, professional growth, and networking opportunities with other local engineers. In particular, continuous professional education is key to attracting practicing engineers, in particular those who are in a rapidly evolving field like communications.

Chapters will have a central role in organizing Industry Summits which will be tailored to address the needs of local industry professionals, those who typically do not publish or go to international conferences. Each Chapter is expected to organize multiple Summits per year and mechanisms for revenue sharing between ComSoc and its Chapters that also introduce good incentives for successful Chapters are being developed. We note that this model can also be utilized to raise the interest of students in joining ComSoc.

The main characteristics of the new "Industry Summit" framework are geared toward creating membership value, and are summarized below:

- Events are exclusive to ComSoc members, with very cheap registration fees. Non-members are entitled to attend a couple of times at a higher rate, then membership is required for attendance.
- Event programs are structured to include invited talks, panels, and tutorials, and all are included in the members' registration fee.
- When possible, academic and industry facilities are leveraged as Summit venues to reduce cost but also to pursue additional objectives: (a) work with industry to organize job fairs for professionals and graduates; (b) entice students to join as members.
- ComSoc Distinguished Lecturers will also be invited to provide talks/tutorials at Summits, and an increase in funding for the Distinguished Lecturer Program will be supported.

In summary, ComSoc has in recent years witnessed a decline in industry participation in our journals, conferences, and membership. Reversing this trend is of fundamental importance to ComSoc as ComSoc (as well as IEEE as a whole) will benefit from having a diverse constituency among its members. ComSoc is working toward reinforcing its membership value proposition and toward differentiating its products/services to attract a type of constituency that is different from the usual one. Please write to Stefano Galli directly at sgalli at ieee dot org if you are interested in participating in any of these ISA initiatives or if you have any other ideas you think would be useful for us to pursue.

## References

[1] S. Galli and A. Reibman, "Analysis Shows No Evidence of Bias Against Fellow Nominees from Industry," *The Institute*, Nov. 20, 2017. http://theinstitute.ieee.org/members/ieee-groups/analysis-shows-no-evidence-of-bias-against-fellow-nominees-from-industry.

[2] National Research Council, 2006, Renewing U.S. Telecommunications Research. Washington, DC: The National Academies Press. https://doi.org/10.17226/11711.