ComSoc Standards Activities

The mission of IEEE Communications Society (ComSoc) Standards Activities is to develop IEEE communications and networking standards as well as to create and maintain ComSoc standards-related activities and products. Standards Activities in ComSoc are managed by two distinct ComSoc Boards: The Standards Development Board (COM/SDB) and the Standardization Programs Development Board (SPDB). In this month's column of the *IEEE Communications Magazine*, I am delighted to introduce Dr. Mehmet Ulema, the Director of ComSoc Standards Development, who chairs COM/SDB, and Dr. Peiying Zhu, Director of the ComSoc Standards Programs Development, who chairs SPDB.

Mehmet Ulema is a Professor at Manhattan College, New York. Previously, he held management and technical positions in AT&T Bell Labs, Bellcore, and Daewoo Telecom. He has been actively involved in standardization in IEEE, ITU, TIA, and ATIS. His involvement includes serving on the IEEE Standards Association (SA) Board of Governors and the IEEE SA Standards Board (SASB) and its committees. From 2014 to 2017, he held the position of Director of Standards Development at ComSoc. Within ComSoc, he has held various leadership roles, including Director of Membership Development Programs, Chair of the Distinguished Lecturer Selection Committee, Co-Founder and Chair of the Technical Committee on Information Infrastructure, and Chair of the Radio Communications Committee. He has also played key roles in major IEEE conferences like GLOBECOM (as TPC Chair and IFE Chair) and ICC (as TPC co-chair), as well as the Network Operations and Management Symposium (NOMS General co-chairs). He co-founded the IEEE Black Sea Conference on Communications and Networking and serves as a founding General co-chair of the IEEE World Forum on Public Safety Technology (WF-PST 2024). Additionally, he co-edits the IEEE Press-Wiley Book series on Network and Service Management. He chairs the Steering Committee of the *IEEE Transactions on Network and Services Management* and has been an Associate Editor for several journals, including the Journal on Internet of Things and Communications Magazine. His book, *Fundamentals of Public Safety Networks and Critical Communications*, was published by Wiley. He is a founding co-chair of the IEEE Public Safety Technology initiative under the IEEE Future Directions Committee. He has received several awards including the IEEE SA Standards Medallion award and the IEEE ComSoc Harold Sobol Award. He holds M.S. and Ph.D. degrees in CS from Polytechnic University (now the New York University Tandon School of Engineering. He also received BS and MS degrees at Istanbul Technical University.

Peiying Zhu, Senior Vice President of Wireless Research, is a Huawei Fellow, IEEE Fellow, and Fellow of the Canadian Academy of Engineering. She is currently leading 6G wireless research and standardization in Huawei. The focus of her research is advanced radio access technologies. She is actively involved in 3GPP and IEEE 802 standards development. She has been regularly giving talks and panel discussions on 5G/6G vision and enabling technologies. She led the team to contribute significantly to 5G technologies and standardization. Many technologies developed by the team have been adopted into 5G standards and implemented in 5G products. She has been serving as the Director of the Wi-Fi Alliance Board since 2012. She was the director of the IEEE ComSoc Industry Outreach Board for the past two years. Prior to joining Huawei in 2009, Peiying was a Nortel Fellow and Director of Advanced Wireless Access Technology in the Nortel Wireless Technology Lab. She led the team and pioneered research and prototyping on MIMO-OFDM and Multi-hop relay, which were adopted into LTE standards and 4G products.

In this column, Dr. Ulema and Dr. Zhu will share their goals and the latest developments in their respective areas.

Robert Schober

Mehmet Ulema

Peiying Zhu

ComSoc Standards Development Board

The ComSoc Standards Development Board, also known as COM/SDB in IEEE SA's terminology, is established by ComSoc to sponsor standards in communications, networking, and related fields within the entire ComSoc's Filed of Interests (FoI). COM/SDB positions ComSoc within the IEEE Standards Activities. It provides a home for developing communications and networking standards through collaborations among academic and industrial researchers and practitioners.

By involving not only materially interested parties but also technology researchers with a strictly professed interest in the standardization of emerging technologies. This ecosystem yields technically superior standards in the pre-competitive technology evolution phase.

COM/SDB also facilitates the development of competitive-phase, market-driven standards. For example, building industry-supported global consensus standards, adopting specifications from industry alliances as IEEE standards, developing regional and local standards, and supporting the adoption of IEEE standards as national standards.

The responsibility of the COM/SDB, which operates under the P&Ps of the IEEE SA, is to govern standards development activities by following the IEEE SA process while maintaining appropriate liaisons through IEEE SA with other global standards bodies. According to ComSoc Bylaws, the COM/SDB Chair serves as the official ComSoc liaison to the IEEE SA Standards Board (IEEE SASB).

Standards development projects within ComSoc are carried out by Working Groups (WGs) established and sponsored by one of the Standard Committees (SC) under COM/SDB. These SCs are organized around specific scopes within ComSoc's FoI, allowing each SC to support Working Groups aligned with its scope. ComSoc has the following SCs shown in Table 1.

The COM/SDB establishes the technical scope of each of its Standards Committees. Under this structure, new standards projects coming to the Board are assigned to the appropriate SCs. The COM/SDB, which is itself an SC, serves as the last resort to sponsor a new project that does not fit within the scope of any existing SCs. Currently, ComSoc has over 50 Working Groups (WGs) actively engaged in standardization projects, maintaining and promoting published standards. See https://comsdb.standards.comsoc.org/projects/ for a list of published standards and active projects under COM/SDB.

The officers of the Board are the Chair (M. Ulema), Vice Chair and Treasurer (A. Gelman), and Secretary (JP Faure). The voting members of the Boards include the chairs of the SCs under COM/SDB as listed in Table 1 and J. Bareham, Chair of the COM/SDB/

Standards Committee (SC)	Short Name	Chair
1. Access and Core Networks	COM/AccessCore-SC	Alex Gelman
2. Unmanned Aerial Vehicles Applications and Communications	COM/AerCom-SC	Haiying John Lu
3. Dynamic Spectrum	COM/DySPAN-SC	Oliver Holland
4. Edge, Fog, and Cloud Communications with IOT and Big Data	COM/EdgeCloud-SC	Rob Fish
5. Green Information and Communication Technology	COM/GreenICT-SC	Jaafar Elmirghani
6. Wireless Mobile Networks	COM/MobiNet-SC	Oliver Holland
7. Network and Service Softwarization, Virtualization, and Operations	COM/NetSoft-SC	Mehmet Ulema
8. Powerline Communications	COM/PLC-SC	Jean Philippe Faure
9. Standards Development Board	COM/SDB	Mehmet Ulema

TABLE 1. ComSoc Standards Development Board (COM/SDB) Members (2024–2025).

CEA WG directly reporting to the COM/SDB. The Board is supported by the staff from ComSoc (K. Pannullo) and IEEE SA (T. Thompson). The Board also has several nonvoting members including VP TEA (W. Zhang), Past Chair/Advisor (E. Tiedemann), and more than 20 liaisons representing ComSoc TCs and ETIs.

The Board is actively working to implement the mission and vision set for by ComSoc Standards Activities. We continually explore new horizons and technical directions, seeking opportunities to position ComSoc within market-driven and emerging technology standards. On strategic matters, the Board has established the following objectives:

• Strengthening COM/SDB's collaboration with SPDB is crucial since COM/SDB heavily relies on the Standardization Programs Development Board for creating standardization documents (whereas COM/SDB is responsible for developing standards documents). SPDB facilitates pre-standardization, co-standardization, post-standardization work, and all standards-related activities, including research groups, meetings and conferences, and publications.

• Continuously monitor the IEEE Future Directions Committee (FDC) and its initiatives on emerging technologies to identify standardization opportunities, in collaboration with SPDB. The FDC's initiatives serve as fertile ground for identifying standards projects, as each initiative includes standards components. Notably, many of ComSoc's standards projects have been developed through this process.

• Collaborate with the IEEE SA Connectivity Practice team, in conjunction with SPDB, to explore and create new projects for ComSoc. Notably, IEEE SA Connectivity Practice actively supports and sponsors various initiatives aligned with ComSoc's interest areas.

• Engage actively in IEEE SASB meetings and its committees to advocate for ComSoc's interests and explore opportunities for increased ComSoc representation within SA governance committees. The IEEE SASB serves as the primary decision-making body for various standardization matters, including approving new projects, establishing SCs and their P&Ps, overseeing the balloting process for standards documents, and making decisions related to patents and policies.

• Proactively collaborate with Technical Committees (TCs) and Emerging Technology Initiatives (ETIs) by actively engaging their liaisons. Raise awareness about ComSoc standards projects and related activities to encourage participation from their TCs and ETIs. Additionally, seek input for new standardization ideas within the scope of their respective domain.

As for logistical and procedural matters, we will continue with our virtual meetings. However, we plan to reintroduce hybrid Board meetings at ICC and GLOBECOM, which were previously disrupted by COVID-19. We've implemented a streamlined reporting process, where each subcommittee (SC) provides a monthly written status report using a simple template—no presentations required. Additionally, once a month, one SC delivers an in-depth presentation focusing on best practices, new project ideas, challenges, solutions, and outreach. This approach allows other SCs to stay informed and exchange ideas. Furthermore, these in-depth presentations serve as alerts to liaisons from Technical Committees (TCs) and Emerging Technical Initiatives (ETIs), highlighting opportunities for their involvement in ComSoc Standards Activities.

In summary, COM/SDB's plans for the future are essentially in sync with the overall ComSoc strategy of increasing its standardization projects, ultimately achieving harmonization of its Standards Activities with Technical Committees (TCs), Emerging Technical Initiatives (ETIs), and Industry Communities within ComSoc via its Standards Boards, both COM/SDB and SPDB. To strengthen this ecosystem, a new council, ComSoc Standards Activities Council, is needed. This council would oversee the operations of both standards boards (COM/SDB and SPDB) under a unified umbrella. Additionally, it would enhance the representation of ComSoc Standards Activities within ComSoc governance and externally in IEEE SA and TAB CoS, effectively integrating standards into ComSoc's strategy.

ComSoc Standardization Programs Development Board

The ComSoc standardization programs development board, also known as SPDB, was established by ComSoc to launch pre- and post-standardization technical activities. These would include, but are not limited to, research groups that lead to the discovery of standardization opportunities. For completed standards, these groups create follow-up programs, such as compliance testing, standards education, workshops, conferences, and publications on technical issues that are relevant to standards. The SPDB supports all ComSoc standards-related technical activities. The scope of this activity includes but is not limited to:

• Standards-related meetings and conferences
• Standards-related Communications Magazine Feature Topics (FT) and FT series
• Standards-related special issues of ComSoc journals
• Creation and oversight of standards-related publications
• Creation and oversight of research groups
• Sponsorship of projects under the IEEE-SA Industry Connections program
• Fostering activities related to innovation and standards research
• Promotion of innovation and standards-related research among ComSoc Technical Committees

SPDB works with the Emerging Technologies Committee of IEEE ComSoc on Emerging Technologies Initiatives to identify the standardization opportunities and collaborate closely with COM/SDB to promote the standardization of identified opportunities. SPDB has been a champion and strong supporter of the IEEE Conference on Standards for Communications and Networking (CSCN), aiming to close the gap between researchers, scientists, and standards experts from academia, industry, and different standardization bodies. SPDB will continue to use this platform for presenting and discussing standards-related topics in the areas of communications, networking, and related disciplines, facilitating standards development as well as cooperation among the key players.

The officers of the Board are the Chair (Peiying Zhu) and Vice Chair (Nada Golmie). The voting members of the Board are Periklis Chatzimisios, Carlos Cordeiro, Monisha Ghosh, Nada Golmie, Andy Molisch, Timothy O'Shea, Ed Tiedemann, and Wei Zhang. Non-Voting members are Rob Fish, Alex Gelman, Kevin Lu, Ivan Seskar and Charlie Zhang. Supporting staff is Karen Pannullo. For detailed information, see the Standardization Programs Development Board Website (https://cspdb.standards.comsoc.org/?_ga=2.259049294.516626257.1716317392-2005553556.1716317392).

Conclusion

Overall, ComSoc's Standards Activities are on an excellent trajectory, and we eagerly anticipate their continued growth and prosperity for the benefit of our members and society at large.