



President's Column

Meeting Technical Information Needs of Professionals

■ Madhu S. Gupta

Primacy of IEEE as Information Source

One of the primary roles of the IEEE and of its Societies, including the IEEE Microwave Theory and Techniques Society (MTT-S), is to serve as a purveyor of technical information. Although this technical information originates outside the IEEE from individual authors and is typically the intellectual property of their institutions, employers, or sponsors, the IEEE Societies add value to it through peer review, thereby making it more trustworthy as accurate and up-to-date information. Additionally, the IEEE provides for the dissemination, archiving, searching, and retrieval of this information and at the same time serves as a forum for discussing, debating, challenging, correcting, updating, or supplementing this information. Such openness, procedural transparency, and the rigorous adherence to long-established and well-publicized IEEE policies, further enhances the confidence level of the users of this information. Indeed, there are no sources considered more authoritative or reliable than the IEEE MTT-S in its discipline.

The ubiquity of computers has altered the technical information needs and information retrieval habits of the users within a generation [1]. As one example, gone are the filing cabinets filled with vendors' catalogs and manufacturers' data sheets, having been displaced by online access to the databases on the vendors' Web sites but with the additional advantages of ease of electronic search and assurance of updated information. The IEEE has not only kept up with but has been at the forefront of this revolution with the literature search engine IEEE *Xplore* serving as an outstanding example.

Because the kind of technical information needed by IEEE Members and other professionals depends on the task being performed—such as conceptual development, design, or research—it evolves with their stage of professional development from student to practitioner or researcher. While IEEE journals are a premier and world-class outlet for research reports, the information needs of the practitioners include many



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other types of information as well [2]. The fact that many IEEE Societies, including MTT-S, do not provide for the full breadth of technical information needed by their members and professionals in their field of interest, has received increasing attention within the Societies, as well as in the IEEE. I would like to report on two recent initiatives aimed at enlarging the scope of offerings that will serve a wider range of information needs.

Practitioners' Journal

Etymologically speaking, the term "journal" refers to a daily record of transactions, experiences, or reflections;



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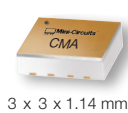
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therefore, a professional journal could be construed as the record of the activities, ideas, or accomplishments, including the problems encountered and attempted solutions, within the professional field. In reviewing the 1976 issues of *IEEE Transactions on Microwave Theory and Techniques* (the only journal published by the MTT-S at that time), Marion Hines, a distinguished member of the Society, suggested that the primary purpose of the journal should be the communication of new and useful technical information [3]. However, when a journal such as *IEEE Transactions on Microwave Theory and Techniques* imposes the requirement of novelty as an essential acceptance criterion for the published papers (a policy founded on the philoso-

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phy that a well-read reader skilled in the art should be able to learn from the published paper something beyond what is already available elsewhere in the literature), it selectively records the accomplishments of only the researchers rather than the general practitioners. Not surprisingly, such a journal does not meet some of the other needs of the practitioner.

One of the most valuable types of information in engineering fields (as well as other fields, such as business and medicine) is that of case studies. A case study typically presents a problem as encountered in its real-world context, and the various efforts made to resolve it, along with observations on their effectiveness. Case studies are the real-life equivalents of the solved problems in a textbook and are useful

for their educational and tutorial value, not only to the students but also to practitioners, because they exemplify the use of technical information in a real context and document the history of the profession's accomplishments. MTT-S has attempted to meet this need in part by publishing "Applications Notes" in *IEEE Microwave Magazine* and through inviting tutorial and review articles that are accessible to a broader range of Society membership.

The recent debut of *IEEE Access*, an open access, online, multidisciplinary IEEE journal (http://www.ieee.org/publications_standards/publications/ieee_access.html), which requires accuracy and currency but not novelty in its published papers, opens the door to publishing reports of technical work without the element of novelty. In addition to being a more practitioner-oriented outlet, this journal should also serve as a record of significant accomplishments of the professional community that could be useful as case studies.

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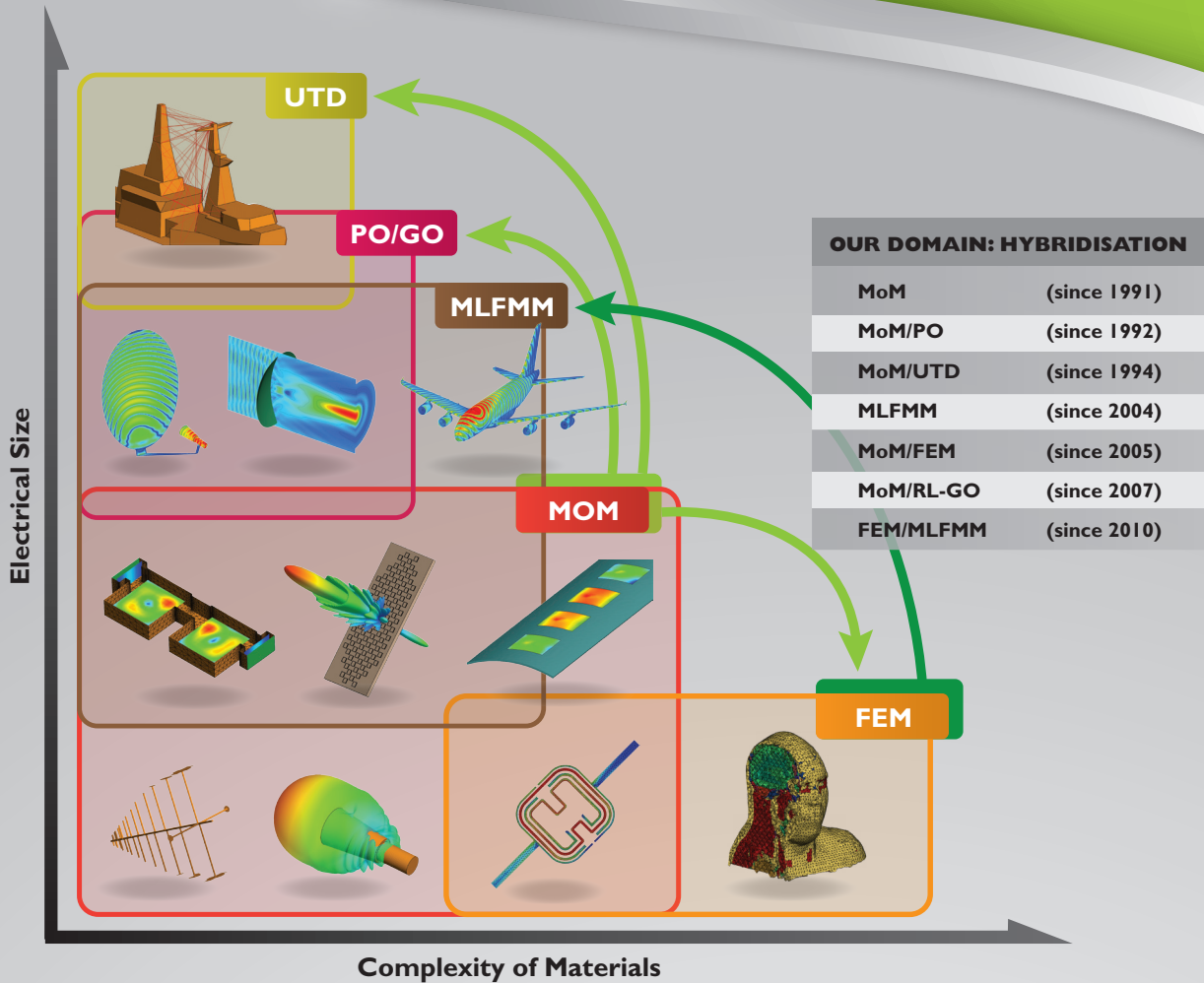
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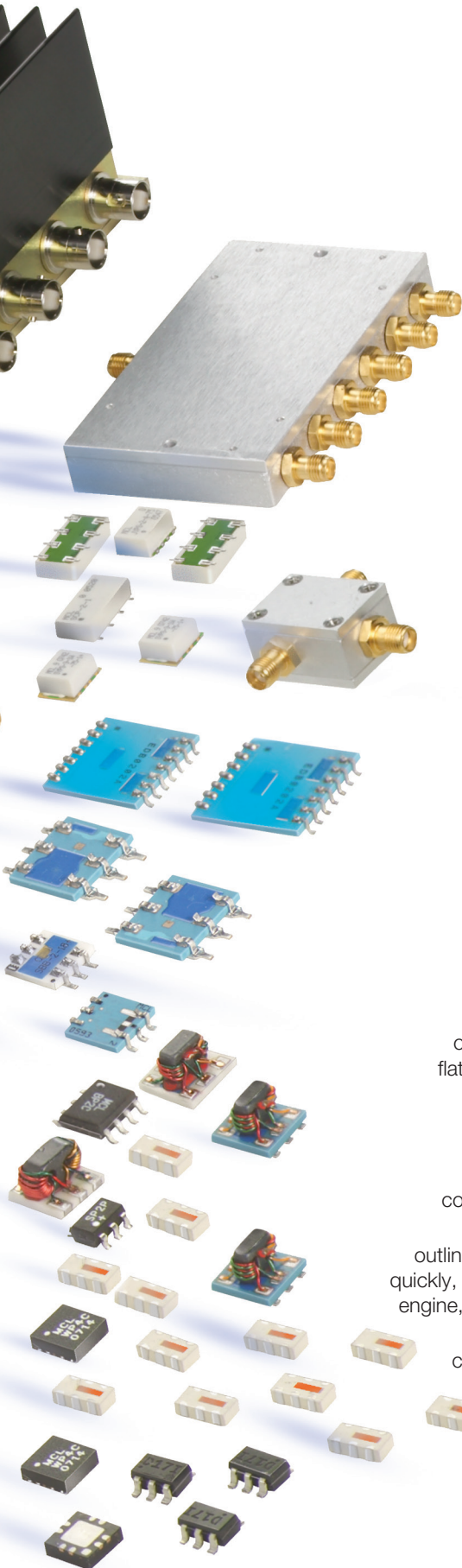
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Practitioners' Reference Needs

MTT-S journals, which require novelty as a criterion for acceptance of papers, are an excellent source of new information, but the practitioners need not only the novel but also the established (read "old") information as well. Moreover, the older research literature may not be the most convenient source for retrieving that information, e.g., because the information appears in piecemeal fashion scattered over many papers, can get buried in the deluge of research output, or due to the intervening changes in terminology, technology, or perspective. Hence the continuing need for secondary literature [2] that consolidates and organizes technical information.

A more substantial coverage of such needs will require the collective effort of large volunteer teams and resources.

In carrying out their work, the practitioners employ a wide variety of types of nonjournal sources for locating technical information, including handbooks for tabulated data; application notes for procedural information, reference books for formulas and approximations; standards for definitions of terms; textbooks for tutorial introductions; patents for known ways of achieving a desired objective; and trade magazines for benchmarks, products, examples, or recent applications. They also employ many nonprint information sources, including videos, computer-aided design (CAD) software, and advice from mentors. The handbooks, reference books, and professional books on

specialized topics, which have historically compiled, consolidated, clarified, and organized this information for ease of access, and are produced primarily by commercial publishers, have been a major source of technical information for the practitioners. More recently, these handbooks and reference books have been supplanted by online information repositories and Web sites that offer extensive collections of data, formulas, definitions, design procedures, and software. Obviously, the Web sites have the additional advantages of frequent updating, electronic searching, and the ability to service the information need in even the highly specialized areas where publishing a reference book would not be cost-effective due to the small market.

Some of the information resources produced by the MTT-S, such as the magazine and the standards, can partially meet the practitioners' need for established information. Another resource for locating such reference information is the set of Web sites hosted by some of the technical committees of MTT-S (<http://www.mtt.org/technical-committee-listing.html>), although the information available there is very limited. These resources do not cover the entire gamut of types of information needed by workers in the field of microwave theory and techniques. A more substantial coverage of such needs will require the collective effort of large volunteer teams and resources that a professional society can mobilize. This observation has motivated our current deliberations on developing online information resources to meet the technical information needs of the members and professionals in our field of interest.

References

- [1] M. S. Gupta, "Editorial," *IEEE Microwave Mag.*, vol. 4, no. 1, p. 6, Mar. 2003.
- [2] M. S. Gupta, "Scientific and technical periodicals and the needs they satisfy," *IEEE Microwave Mag.*, vol. 6, no. 1, pp. 6-8, Mar. 2005.
- [3] M. E. Hines, "Evaluation of MTT transactions (1976)," *IEEE Trans. Microwave Theory Tech.*, vol. 25, no. 3, pp. 234-235, Mar. 1977.



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