



by Wade H. Shaw, Jr.,
President EMS

Our Society in Review

Greetings and welcome to the start of a new decade, a new century, and a new Millennium! For me it is the start of a new role as President of our Engineering Management Society (EMS). It's a privilege to serve in this position and I thank the EMS Board of Governors (BoG) for their vote of confidence.

We are indebted to Cinda Voegtli, our Past president in 1998 and 1999, for her many contributions to our Society and to IEEE. Through her efforts in promoting the EMS Field of Interest throughout the world, our Society has become more visible.

The year 2000 begins with a new group of Vice Presidents who will continue the efforts from past years and start new projects. Dennis Bodson will serve as Executive Vice President, Gus Gaynor as VP-Publications, Lois Peters as VP-Conferences, Charlie Rubenstein as VP-Member Relations, Paul Willis as VP-Education, and Luchi Gandia as VP-Recognition & External Relations.

Our editors include Dunder Kocaoglu for the *IEEE Transactions on Engineering Management*, Dave Wells for the *Engineering Management Review*, Gus Gaynor for the Newsletter, and Charlie Rubenstein for the Web. Also, Vivian Carr will serve again this year as our Treasurer and Tom Grim as the Society Secretary.

We begin this New Year with a 5-year Society review by the Technical Activities Board (TAB) of the IEEE. This review provides the Society and the IEEE with an opportunity to reflect on our achievements, our strategy, and our contribution to the membership. The report will be posted on the EMS Website [<http://www.ewh.ieee.org/soc/ems>].

I would like to share some excerpts from the "Long Range Goals and New Directions" section of the report.

Since 1996 the Society has integrated strategic planning into its BoG meetings. The Society has followed a "project" model of operations where the board establishes strategic objectives in general areas like conferences, membership, publications and education. Then each area works to develop plans and strategies that lead to specific projects, action lists, and assignments.

Project progress is reviewed and reoriented each year to reflect the most current opportunities that improve value to the EMS membership. This approach also illuminates new directions that have the most significant impact on our membership.

Here are a few examples of EMS projects that led to a wider awareness among the IEEE membership of our field of interest and our activities:

- Published special issues of the *Transactions on Engineering Management* and the *Engineering Management Review*
- Offered a workshop on "project management" that enjoyed considerable financial success
- Participated in Regional meetings and the PACE (now ProDevCon) conference
- Developed a more global perspective of our field-of-interest statement by participating in Region 8 - 10 meetings as a critical element of increasing membership

Several strategic issues are currently under consideration:

1. Resolve the issues related to an electronic version of the *Engineering Management Review*
2. Provide new member services through the availability of electronic conferencing and electronic educational products
3. Work with other Societies that have

Become active in the Engineering Management Society. Share your interests and concerns with colleagues from academia, industry, and government. Contact any Board member listed on page 8 for additional information.

Engineering Manager of the Year Award

by Dennis Bodson, Executive Vice President

Can you suggest a candidate for Engineering Manager of the Year Award (EMYA)? Here are the requirements:

Eligibility: Senior Member or Fellow of IEEE, member of the Engineering Management Society (EMS) for at least three years, and an Engineering Manager for at least ten years.

Basis for Judging: Outstanding executive or managerial contributions to the field of electrical and electronics engineering.

Presentation: Annually, to the recipient the year following selection at the IEEE Engineering Management Society Conference,

or other meeting authorized by the Society.

Award: \$1,000.00 beginning next year. Award is generally presented at an EMS Conference. There's no travel reimbursement.

Schedules: Nominations and references must be received by the EMS Awards Committee Chair by June 15 of the year to be considered for the award.

Nominations: See eligibility. Use EMYA or IEEE Fellow Award nominating form (B-27). Provide two references. Nominating form (EMYA) may be obtained from the EMS Award Committee Chair, Irv Engelson, at i.engelson@ieee.org.

“... in far from equilibrium conditions we find that very small perturbations or fluctuations can be amplified into gigantic, structure-breaking waves.”

— Ilya Prigogine,

Order Out of Chaos, 1984

Call for Papers – ICMIT 2000

International Conference on Management of Innovation and Technology
November 12 - 15 2000, Orchard Hotel, Singapore

Sponsored by: The Institution of Engineers Singapore and EMS as a Cooperating Society

Topics include – Product and Process Innovation – Total Quality Management – Technology Management – Management of Research and Development – Information Technology Management – Software Engineering Management – Project Management – Supply Chain Management – Production and Operations Management – Management Issues of Asia-Pacific Countries

Conference Websites – <http://www.ise.nus.edu.sg/icmit>
<http://www.vlsi.ee.nus.edu.sg/~icmit/>

Author's Schedule

Deadline for Paper submissions	31 May 2000
Notification of Acceptance	15 July 2000
Camera-Ready Copy	30 September 2000

Papers may be sent in electronic form to congreg@congreg.com.sg or in hardcopy to ICMIT 2000 Secretariat, Congrex Singapore, 43 Carpenter Street #04-01, Greatwood Building, Singapore 059922.

Our Society in Review

Continued from page 1

- shown an interest to include management topics in their meetings and conferences
4. Establish technical committees that could be used to promote research and development in our areas of interest
 5. Establish closer relations to the IEE in the UK
 6. Find better ways to integrate new chapters and their membership into the Society
 7. Improve the quality and value of our conferences

The BoG includes people from industry, government, and academia. Currently we have four women and four non-US BoG members. The EMS has a bright future and our core mission is to add value to the professional careers of our members. This challenge becomes more difficult as we continue to focus on the global impact of our activities.

The future of the EMS is indeed a bright one. This is due in part to a dedicated BoG but more importantly our success depends on your support. I'm counting on you to help us meet the challenges and move forward.

Part 3 of four parts

In part 2, I began with a story that illustrated servant coaching in action at the individual level. Then I set the stage for taking coaching to the organizational level. Now we'll look at how serving as a coach to your organization empowers people to uncover and solve problems and provide an environment in which they can develop their full potential. Furthermore, this all leads back to freedom for the servant coach to develop strategies for organizational and personal growth.

The answer we receive to a question depends on how we phrase the question — it's important to know how to ask the right questions. When I ask my employees, "How are things going?" they usually answer, "Good, everything is OK." Further probing and exploration leads them to show me that work gets done the way that they think I want it done. In other words, there are often clever ways that they can cover up the "dirty little secrets" of the process. I can illustrate what I mean with a story. As I told you in the last installment, part of my learning during a seminar at MIT was to spend time with the people I managed in their work environment.

I chose to spend a day in the life of a first line supervisor that reported to me. By the end of the afternoon, I was exhausted. This woman was a human dynamo. She had spent six hours analyzing and conditioning production orders and meeting with production expeditors. Everything seemed to be running smoothly. Far be it from me to help her find a flaw in the information flow or improvements in her approach to work.

If this woman worked this way all of the time, I concluded that she needed at least one person to assist her. When I asked her if this was the manner in which she worked all of the time she looked at me questioningly and must have decided that I could be trusted. She disclosed that in preparation for

her day with me she had saved up three or four day's paperwork and had even asked people the day before to come to see her the next day, knowing that I would be there.

I had been set up. In thinking back to the organizational culture that existed at that time, I guess I had asked for it. Out of desperation, I asked her to tell me about the problems that she and her employees faced on a typical working day. She quickly showed me a large electromechanical assembly with several hundred component parts and several miles of wiring. The wiring was what she brought to my attention.

There were several pairs of wires residing in bundles to form cables that connected a series of terminals that were located adjacent to one another. The product design called for using wires that were color coded in a basic colors (red, green, etc.) with a thin pastel stripe. The most serious problem — the thin stripes were difficult to distinguish one from the other — resulted in wiring errors that were often difficult to find.

After we discussed how this problem could be overcome — with both short- and long-term solutions — other problems were brought forward. These discussions led to a suggestion that a cross-functional meeting was necessary between production and engineering personnel to resolve the problem jointly — it was both an engineering and manufacturing problem. These meetings proved to be very productive.

Getting back to how to ask the right question — I've learned that a better question is "What can we do to make your job easier, more productive, more enjoyable, and less vexing?" This usually starts a conversation that leads to real improvement in product and service quality, employee morale, and customer satisfaction.

The second lesson I learned was that no matter how large or how small,

organizations need to have continuous improvement (CI) objectives concretely articulated throughout the organization.

Here are a couple of examples of CI objectives:

- The mailroom may aim at sorting and delivering the mail within two hours of receipt, which is an improvement of one hour.

- The engineering department might

IEMC-2000

Leading Technological Change: Management Issues and Challenges for the New Millennium

Marriott Hotel, Albuquerque, New Mexico

August 13 – 15, 2000

Sponsored by — IEEE Engineering Management Society

IEMC-2000 continues to take shape with the abstracts providing an interesting profile of the direction that Engineering Management is taking in the new millennium.

Conference Profile

It's no surprise that various aspects of information management (information technology, information systems, telecommunications, electronic commerce, etc.) represent the single largest topical area, accounting for almost 30% of submitted abstracts. What may come as a surprise, however, is that papers, dealing with various aspects of manufacturing, account for almost 20% of the submissions. So the forecasts of the death of manufacturing, as an important issue for engineering managers, in the "new economy" are somewhat premature.

About 1/3 of the submitted abstracts deal with the traditional EMS core areas such as technology and project management, while about 1/4 are concerned with new product development and innovation. About 40 percent of the submitted abstracts come from industry or government laboratories, with the remainder from academia. We are particularly pleased with the strong response from industry — achieving a balance between academic and industrial participation has always been a challenge. Roughly half of the abstracts come from outside the United States which clearly demonstrates the transnational nature of engineering and technology management.

Panels and Informal Roundtables

IEMC-2000 also includes an innovative series of panels and informal roundtables on "hot" topics that will be open to all. So, if you missed your chance to submit an abstract but still feel strongly about a particular topic area, you still have a chance to contribute.

The plenary sessions (two breakfast sessions and two luncheon sessions) will include speakers from Sandia National Laboratories, Air Products, and Lucent Technologies. Prof. Aaron J. Shenhar, Institute Professor of Management, Wesley J. Howe School of Technology Management at the Stevens Institute of Technology, and the 1998 recipient of the EMS Engineering Manager of the Year award, will speak on *How to Make Project Management Your Next Competitive Weapon*.

Workshops

As in past EMS conferences, IEMC-2000 includes a series of tutorial workshops on the Sunday immediately preceding the conference. Please check our web page [<http://asm.unm.edu/mot/iemc2000.htm>] for the latest information.

Need Additional Motivation

If you need additional motivation to participate, consider that New Mexico — The Land of Enchantment — is a "must see" for those seeking a fuller appreciation of the culture and scenic grandeur of this part of United States.

To help you in this regard, we're holding the conference banquet at the Indian Pueblo Cultural Center in Albuquerque. The Cultural Center is owned and operated by the 19 Pueblo tribes of New Mexico and includes a museum, galleries and extensive gift shops, all of which will be open for our exclusive use on the Monday evening of the conference. The banquet will consist of a New Mexican buffet with entertainment provided by a Native American dance troupe.

Companions Program

As part of our Companions' Program, we're planning a trip to nearby Santa Fe — Santa Fe is far more than a magnificent southwestern shopping center. Did you know that Santa Fe is the oldest capitol in North America, having been founded by the Viceroy of New Spain in 1610 to serve as the seat of government for Spain's New Mexico territory? You'll find a wealth of historical sites and museums.

**So, whatever else you plan to do this summer, make sure that you set aside time
for IEMC-2000 — the date, August 13-15, 2000.**

See you in Albuquerque!

Your IEMC-2000 Contacts

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Deadlines IEMC 2000

March 1, 2000 — Acceptance
or rejection notification

April 15, 2000 — for final
“camera ready” papers

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Congratulations to New Senior Members

The EMS Board of Governors congratulates and sends its best wishes to the Engineering Management Society's newly appointed Senior Members.

Robert L. Anderson
Calgary, Alberta Canada

Jin-Woo Ahn
Pusan, Korea

David R. Baum
Tucson, Arizona

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Fairfax, Virginia

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Kurong Wang
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Desmond K. Yuen
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IEMC-2000

<http://asm.unm.edu/mot/iemc2000.htm>

We need to distinguish between data, information, knowledge, and wisdom. Data are undigested observations. Information is organized data by others. Knowledge is information put to use in my mind and tested in practice. Wisdom is integrated knowledge.

— Harlan Cleveland in *The Knowledge Executive*

Benelux Chapter News

by Bart Meijer, Program Chair Benelux Chapter

After the successful kick-off meeting of the Benelux-Chapter of IEEE-EMS in July 1998 it became quiet; too quiet as a matter of fact. Was it the subject, or is EMS-Benelux too small?

Our founder and first Chapter Chair Sander Nijbakker found that professional career needs required additional attention. Robert Bierwolf took over as Chapter Chair and in the summer 1999 Bart Meijer was appointed Vice Chair and Program Chair. Bart is a staff member at the mechanical engineering faculty at Delft University of Technology and involved in research on Technology Management and Innovation processes.

The focus of the Benelux chapter — “*knowledge management and management knowledge*”, is a topic that has created much interest. Organizations such as the Dutch Organization for Knowledge Management (NOK), the Royal Dutch Institute for Engineers (KIVI), and the Society for Strategy and Policy Making (VSB) are playing an active role in developing working groups in knowledge management.

The EMS-Benelux meeting brought together speakers from KIVI, NOK, the strategy department of the Dutch Institute of Applied Research (TNO-STB) and IEEE-EMS. The meeting offered some perspectives on knowledge management.

Jan Voûte (KIVI and DIMI – Dutch Institute of Management and Innovation) presented the so-called TAO© model. TAO stands for Technology, Application, and Organization but in Chinese it also means “the way.” TAO shows the steps and transformations necessary to transform science and technology into a successful user application. It also helps create a common language between Science, R&D, Production, Distribution, and Marketing.

Hans Dekker (NOK) introduced the cultural aspects of knowledge management. His

presentation emphasized that organizational cultures need a collegial sharing of knowledge to be successful in knowledge management. He emphasized that introduction of knowledge management has to go hand in hand with a change in culture.

Maarten Dirks (TNO-STB) presented a macro-economic example of knowledge management using medical education in the Netherlands. The Dutch government focuses on developing general practitioners and limits the education and training of medical specialists because of cost.

Bart Meijer introduced the classical difficulties that exist between engineers and managers — the mental gap between engineers and managers. In his book *Third Generation R&D*, Roussel put forward a stereotypical picture of the R&D engineer — *money is for managers, engineering is for engineers*.

How can these different perspectives be resolved? The process begins with developing a common language. Engineers should be more aware of the business value of their technology and managers should understand the concepts of technology relevant to their business.

Meijer reviewed some of the concepts for integrating engineers and managers discussed at IEMC'98 by Michael Mann. The TAO model of Voûte and the Lucent Value Creation Model (Mel Indyk, IEMC '98) may also be useful. Finally the group discussed ways to speed up the development process itself, looking at concepts as genetic organizations (Meijer IEMC'98) and knowledge amplification (Numata IEMC'98).

For additional information please contact:

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Robert E. Fenton Elected IEEE Fellow

by Dennis Bodson, Executive Vice President

Robert E. Fenton, a member of the Engineering Management Society, has been elected to the Grade of Fellow effective January 1, 2000.

His citation reads,

“For leadership in the advancement of generator

technology and development of advanced machine design concepts”

The EMS Board of Governors, on behalf of the Engineering Management Society members, extends its congratulations to Robert E. Fenton.

From the Editor

Gus Gaynor

The September-October 1999 issue of the Harvard Business Review included an article *Go Downstream, The New Imperative in Manufacturing* by Richard Wise and Peter Baumgartner. The authors suggest that smart manufacturers are creating business models that capture profits at the customer's end of the value chain. These organizations build on their core competencies but tap into the economic activity that occurs throughout the entire product life cycle.

As I read the article I thought about the influence that *going downstream* would have for adding value to the total engineering effort and also enhance engineering careers. Our end product involves more than doing engineering. Engineers are participants in the complete product *concept to commercial - ization process*. In reality, the test of the engineer's work comes from the marketplace.

While there is considerable hype about being customer oriented, let's face it and admit that successful businesses and careers depend on satisfying the customer (in the broadest sense) — within as well as outside the organizational boundaries.

Engineering exists to add value. Many engineering managers and most engineers do not think in terms of the value chain — the value added to the organization through their efforts. The engineering value chain extends beyond the traditional functional engineering organization.

Engineers need to look at the value chain through the customer's eyes: what's important to the customer? Performance takes precedence over technological elegance. Timely technical support, *now not tomorrow or after the third call*, takes precedence over promises for tomorrow. Engineers need customer feedback — the good, the bad, and the threatening. Third party information and e-mail reports are not a substitute for face to face discussions with a customer.

Engineers cannot possibly design a product without understanding how the typical customer will use the product, under what conditions, and with what level of understanding. The engineer cannot develop a product that minimizes the overall cost of

owning and using the product without some first hand information. We all know the tragic stories of unverified product requirements — often too many bells and whistles and marginal performance.

So, what directions do engineering managers pursue to expand the intellectual and business horizons of their engineers and what should engineers do to expand their value-added to themselves and the organization? A few thoughts.

Get out of the cubicle — See the rest of the world. Find out what your colleagues are doing and get involved by asking the right questions — the what, why, when, who, how, and where. Find out what's going on in those other cubicles. We used to call this getting into other peoples' sandboxes. You may just find out how, what you're working on, fits into the total picture.

Become proactive — Look beyond the present. Imagination, thinking of what could be, drives engineering. It's exciting to discuss future possibilities. But imagination must be followed by action, and action requires knowledge, discipline, and really hard work. Eight to five doesn't cut it.

Find the opportunities — Engineering is about ideas, concepts, invention, innovation, and more. It's also about entrepreneurship. It's a creative profession. It's about effectiveness, efficiency, and the economic use of resources. It's about being the contributing maverick. It's not a routine nine to five job.

Take risks — Dealing with the new and novel involves both financial and personal risk. The financial risk can be easily reconciled. Disregarding some organizational time-honored practices presents personal risk. There's a time to take a position even though it may create tension. It's your future.

Every engineering manager and engineer may not accept these thoughts but if you keep thinking today what you thought yesterday, don't expect different results. There are no magic answers, no recipes, and no prescriptions in a dynamic global economy. Make the time and see what you're colleagues are doing. You just might change your perspective.

“Innovation is not science or technology, but value.”

— Peter F. Drucker,
*Management Tasks,
Responsibilities, Practices*

“What's become clear to you since we last met?”

— Ralph Waldo Emerson
greeting old friends.

This is sure more appropriate than “have a nice day.”

— Gerard H. (Gus) Gaynor

Board of Governors

Your Board serves the interests of the Society and promotes Excellence in Engineering Management. Please contact any Board member for additional information, for expressing your opinions, or raising issues that need to be addressed by the Society.

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First Quarter	7 January 2000
Second Quarter	3 April 2000
Third Quarter	30 June 2000
Fourth Quarter	1 October 2000

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